

**FINDING OF NO SIGNIFICANT IMPACT (FONSI)  
FINDING OF NO PRACTICAL ALTERNATIVE (FONPA)  
EXTENSION OF RUNWAYS AT THE  
CHARLESTON INTERNATIONAL AIRPORT  
AND CHARLESTON AIR FORCE BASE JOINT USE AIRFIELD**

Pursuant to the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA) and 32 Code of Federal Regulations (CFR) 989, *Environmental Impact Analysis Process (EIAP)*, the Charleston County Aviation Authority (CCAA) and Charleston Air Force Base (CAFB) have prepared an Environmental Assessment (EA) for this action, which is attached and incorporated by reference per 32 CFR 989.15(a). The purpose of the EA is to determine the extent of environmental impacts that may result from extensions of Runway 03/21 and Runway 15/33 and attendant facilities and to evaluate whether these impacts will be significant.

**DESCRIPTION OF PROPOSED ACTION**

The CCAA proposes to extend Runway 03/21 and Runway 15/33 to improve the versatility of the joint use airfield (JUAF), which is shared with CAFB – the owner of the airfield facilities. The CCAA is currently seeking funding for the airfield improvements to specifically include the extension of Runway 03/21 from its current length of 7,000 feet to 9,000 feet by extending the 03 end by 2,000 feet and the extension of Runway 15/33 from its current length of 9,000 feet to 10,500 feet by extending the 15 end by 600 feet and the 33 end by 900 feet. The specific design elements will include, but are not limited to such changes as extension of associated taxiways, clear zones, movement of navigational aids and other necessary improvements for these extensions. These measures will be designed and proposed under the guidance of the U.S. Air Force's Unified Facility Criteria (UFC) 3-260-01, *Airfield and Heliport Planning and Design*.

**PROJECT PURPOSE**

The funding and approval for this project is being sought in order to improve the versatility of the existing JUAF for CCAA, and to prevent an interruption of the current level of service to the Charleston International Airport (CIAP) during the planned CAFB runway rehabilitation. The CIAP currently is serving many major national airlines, as well as the new Vought-Global Aeronautica facility, which produces the largest component parts for the new Boeing 787 "Dreamliner" aircraft. This operation requires that a runway of at least 9,000-foot in length be available for take-offs by the specially modified 747-400 Large Cargo Freighter "Dreamlifter" when it is loaded with major components to be used in the assembly of the 787. During the planned repair of the 9,000 foot Runway 15/33 in approximately FY 2011, this runway will be closed for approximately one year. The closure of the primary runway will cause recognized disruptions to the current and future operations at the CIAP.

In addition to the current manufacturing facility at CIAP, CCAA and the larger Charleston community has the goal of attracting new aeronautical based businesses, including manufacturing and other ventures. Existing studies have shown that these businesses are more often attracted to airports with a primary runway of 10,000 feet or larger. The current primary runway length of 9,000 feet is a limiting factor when Charleston is considered as a potential site to locate potentially large or economically important business ventures.

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#### **ALTERNATIVES**

**Alternative 1: (Resulting in a Primary Runway of 10,500 feet and Secondary Runway of 9,000 feet)** - Extension of Runway 03/21 from 7,000 feet to 9,000 feet by lengthening the 03 end by 2,000 feet with 1,000 feet of paved overrun. Extension of Runway 15/33 from 9,000 feet to 10,500 feet by lengthening the 15 end by 1,500 feet with 1,000 feet of paved overrun.

**Alternative 2: (Permanently Displaced Thresholds – Both Runways)** - Extension of Runway 03/21 from 7,000 feet to 9,000 feet by lengthening the 03 end by 2,000 feet of overrun/displaced threshold. Extension of Runway 15/33 from 9,000 feet to 10,500 feet by lengthening the 15 end by 1,500 feet of overrun/displaced threshold.

**Alternative 3: (Extension of Runway 15/33 only)** - Extension of Runway 15/33 from 9,000 feet to 10,500 feet by lengthening the 15 end by 1,500 feet with 1,000 feet of paved overrun.

**Alternative 4 (Preferred): (Resulting in a Primary Runway of 10,500 feet and Secondary Runway of 9,000 feet)** - Extension of Runway 03/21 from 7,000 feet to 9,000 feet by lengthening the 03 end by 2,000 feet with 1,000 feet of paved overrun. Extension of Runway 15/33 from 9,000 feet to 10,500 feet by lengthening the 15 end by 600 feet and the 33 end by 900 feet with 1,000 feet of paved overrun.

**Alternative 5: (Resulting in a Primary Runway of 11,200 feet and Secondary Runway of 9,000 feet)** - Extension of Runway 03/21 from 7,000 feet to 9,000 feet by lengthening the 03 end by 2,000 feet with 1,000 feet of paved overrun. Extension of Runway 15/33 from 9,000 feet to 11,200 feet by lengthening the 15 end by 1,300 feet and the 33 end by 900 feet with 1,000 feet of paved overrun.

**Alternative 6: (No Action Alternative)** - The “Do Nothing Alternative” – Is the alternative where the airfield is left in its current configuration and rehabilitation of existing runways as currently planned are carried out.

Two other alternatives considered, but not thoroughly analyzed were briefly described, but ruled out as not practical. These include the construction of a completely new runway parallel to the existing, at the proposed length, and the extension of Runway 03/21 to 10,500 feet.

#### **IMPACTS TO THE AFFECTED ENVIRONMENT**

The Proposed Action and the alternatives were evaluated for their potential impacts on various environmental factors, such as compatible land uses in the surrounding community to include but not limited to, noise, water quality, air quality, traffic and natural and cultural resources. The potential impacts to the environment outlined in the attached EA document, though not considered significant, do include temporary construction related impacts to solid waste management units, a permit required for temporary construction related air emissions, and the permanent impacts up to approximately 147.01 acres of Federally jurisdictional and/or isolated wetlands in both construction phases of the project.



The environmental effects of this project will be considered not significant due to the mitigating factors that are addressed in the regulatory process. The mitigating factors include obtaining Section 404 (wetland) permits, site monitoring, and compensatory mitigation of wetland impacts. The proposed extension project is being phased to coincide with the currently scheduled repairs to Runway 03/21 (phase one), and the future repairs on Runway 15/33 (phase two).

The permitting and compensatory wetland mitigation will be conducted in this same phased approach. Phase one wetland impacts include the fill of approximately 74 acres and clearing of up to approximately 30.87 acres of wetlands. The phase one wetland impacts will be mitigated by the preservation, buffering and deed restriction of other CCAA properties; purchase of mitigation bank credits; preservation, restoration and buffering of wetlands located on public parklands in Charleston County; and possibly by providing in-lieu fees to approved programs. The approximate total credits to be required in phase one is 1,100. Phase two wetland impacts will include an anticipated 29.7 acres of wetland fill and 10.16 acres of clearing. Phase two mitigation is anticipated at this time to be approximately 450.2 wetland credits. Due to the longer delay until the start of phase two, the accurate wetland impacts and mitigation activities will be re-addressed at a later date, when project funding and more specific plans are available.

The permit coordination and compensatory mitigation measures will be implemented in accordance with state and Federal regulations, as a condition of the permits issued for finding of no significant impact to the aquatic environment to be issued. Therefore, this proposed action is not expected to have a significant impact on the overall environment.

#### **PUBLIC REVIEW AND INTERAGENCY COORDINATION**

The interagency review process began on January 30, 2008 with the release of the Description of Proposed Action and Alternatives (DOPAA) to the natural resource, environmental and regulatory agencies and other groups typically involved with commenting on publicly sponsored projects – a comprehensive list of the 15 parties copied is attached in the EA. After a 30 day review period, comments were received from the following five agencies; the Federal Aviation Administration, the Catawba Indian Nation – Historic Preservation Office, the U.S. Army Corps of Engineers, the South Carolina Department of Natural Resources, and the South Carolina Department of Archives and History. Comments received were addressed in the subsequent Draft EA, which was released on July 17, 2008 to all agencies again. Also, the Draft EA was placed in the local library and publicly advertized as available to the general public for review and comment for a period of 30 days – from July 17, 2008 to August 16, 2008. The comment period elapsed with no further comments received from the any applicable agencies, or the general public.

#### **FINDING OF NO PRACTICABLE ALTERNATIVE**

Pursuant to CEQ regulations, the Air Force Environmental Impact Analysis Process published as 32 CFR Part 989 and Executive Order 11990 (Protection of Wetlands); and taking into consideration the information contained herein (including the attached EA), I find that there is no practicable alternative to completing the Proposed Action, without the impacts described herein. The Proposed Action includes practicable measures to minimize harm to the environment and compensate for unavoidable impacts. Prior to conducting the Proposed Action, the CCAA, in

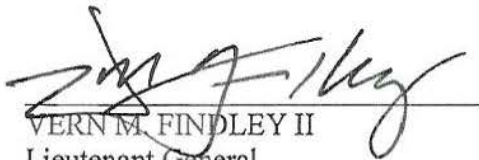


cooperation with the CAFB, will complete necessary coordination with the regulatory agencies and receive the permits and certifications required to carry out the Proposed Action.

**FINDING OF NO SIGNIFICANT IMPACT**

Based on my review of the EA, as conducted in accordance with the provisions of the NEPA, CEQ regulations and 32 CFR Part 989, I conclude the Proposed Action should not have a significant impact to the human or natural environment, taking into account all information submitted and the measures proposed. Accordingly, an Environmental Impact Statement is not required. The signing of this Finding of No Significant Impact and Finding of No Practicable Alternative completes the Environmental Impact Analysis Process.

**SIGNED:**



VERN M. FINDLEY II  
Lieutenant General  
Vice Commander  
Air Mobility Command

DATE: 6 Oct 08

**ENVIRONMENTAL ASSESSMENT FOR  
EXTENSION OF RUNWAYS AT  
CHARLESTON INTERNATIONAL AIRPORT  
AND CHARLESTON AIR FORCE BASE  
CHARLESTON, SOUTH CAROLINA**

**Prepared For:**

**Charleston County Aviation Authority  
and 437<sup>th</sup> Civil Engineering Squadron  
Air Mobility Command**

**Submitted By:**

**S&ME, Inc.  
620 Wando Park Boulevard  
Mt. Pleasant, South Carolina 29464  
(843) 884-0005**

**S&ME PROJECT NO. 1134-07-747**

**September 3, 2008**



**COVER SHEET**  
**ENVIRONMENTAL ASSESSMENT - EXTENSION OF**  
**RUNWAYS AT THE CHARLESTON INTERNATIONAL AIRPORT**  
**AND CHARLESTON AIR FORCE BASE**  
**CHARLESTON, SOUTH CAROLINA**

- A. Project Sponsor: Charleston County Aviation Authority (CCAA)  
Primary Review Agencies: Department of the Air Force and Federal Aviation Administration (FAA)  
Funding Approval Agency: FAA
- B. Proposed Action: Extension of Runway 03/21 and Runway 15/33 to accommodate current air traffic, increase airfield capacity for larger commercial aircraft, increase the potential for future growth of local aeronautics industry and increase safety on the Charleston International Airport (CIAP) and Charleston Air Force Base (CAFB) runways and taxiways.
- C. Written comments and information requests should be directed to: Joe Camp, 437<sup>th</sup> Civil Engineering Squadron, Environmental Management Flight (437 CES/CEVP), Charleston Air Force Base, 100 W. Stewart Avenue, Charleston, SC 29404-4827
- D. Report Designation: Environmental Assessment (EA)
- E. Executive Summary/Abstract: CCAA in cooperation with CAFB proposes to secure FAA funding and award a construction contract to extend Runway 03/21 and Runway 15/33 as a significant improvement to the shared-use airfield facility. The purpose is to enhance the runway facilities for civil aviation, cargo, manufacturing and other civilian users of the airfield. The preferred alternative is to extend the 03 end of Runway 03/21 by 2,000 feet, the 15 end of Runway 15/33 by 600 feet and the 33 end of Runway 15/33 by 900 feet. Current plans call for CCAA-funded construction projects to run in conjunction with the Air Force funded repairs already scheduled for approximately FY 2009 and FY 2011. The extension of Runway 03/21 will prevent restrictions and interruption to service for the various commercial, cargo, manufacturing and other civilian users of the airfield by providing continuous availability of a 9,000 foot runway during the repairs and improvements to Runway 15/33. The extension of Runway 15/33 to 10,500 feet will increase capacity and increase airfield versatility to be similar to other regional airports.

Five action alternatives and one no action alternative are discussed and presented for evaluation of their feasibility and impacts on the environment.

## **TABLE OF CONTENTS**

<b>1.0</b>	<b>PURPOSE AND NEED FOR ACTION.....</b>	<b>1</b>
1.1	Introduction/Background.....	1
1.2	Purpose and Need .....	3
1.3	Decisions to be Made .....	5
1.4	Scope of the Environmental Assessment.....	5
1.5	Applicable Regulatory Requirements and Required Coordination.....	5
<b>2.0</b>	<b>ALTERNATIVES INCLUDING THE PROPOSED ACTION .....</b>	<b>7</b>
2.1	Alternative Evaluation Criteria.....	7
2.2	Alternatives Considered and Carried Forward .....	7
2.2.1	Alternative 1 .....	7
2.2.2	Alternative 2 .....	9
2.2.3	Alternative 3 .....	10
2.2.4	Alternative 4 .....	10
2.2.5	Alternative 5 .....	12
2.2.6	Alternative 6 .....	13
2.3	Alternatives Considered and Not Carried Forward.....	13
2.3.1	Runway Relocation .....	13
2.3.2	Extend Runway 03/21 to 10,500 feet .....	13
<b>3.0</b>	<b>AFFECTED ENVIRONMENT .....</b>	<b>15</b>
3.1	Aesthetics .....	15
3.2	Air Quality.....	15
3.3	Compatible Land Use .....	21
3.4	Ecologically Sensitive Areas.....	24
3.5	Health and Safety .....	24
3.6	Farmlands.....	25
3.7	Floodplains.....	25
3.8	Hazardous Materials .....	27
3.9	Historic and Cultural Resources .....	29
3.10	Noise .....	29
3.11	Socioeconomic Impacts.....	39
3.12	Threatened and Endangered Species.....	40
3.13	Traffic and Transportation.....	41
3.14	Water Resources .....	42
3.15	Wetlands .....	43
3.16	Wild and Scenic Rivers.....	44
3.17	Indirect and Cumulative Impacts.....	44
<b>4.0</b>	<b>ENVIRONMENTAL CONSEQUENCES.....</b>	<b>46</b>
4.1	Aesthetics .....	48
4.2	Air Quality.....	48
4.3	Compatible Land Use .....	50
4.4	Ecologically Sensitive Areas.....	51



4.5	Health and Safety .....	52
4.6	Farmlands .....	52
4.7	Floodplains.....	53
4.8	Hazardous Materials .....	53
4.9	Historic and Cultural Resources .....	54
4.10	Noise .....	55
4.11	Socioeconomic Impacts.....	56
4.12	Threatened and Endangered Species .....	57
4.13	Traffic and Transportation .....	58
4.14	Water Resources .....	59
4.15	Wetlands .....	59
4.16	Wild and Scenic Rivers.....	62
4.17	Indirect and Cumulative Impacts.....	62
5.0	LIST OF PREPARERS .....	65

### FIGURES

1.	Site Location Map .....	1
2.	Existing Overall Airfield Layout .....	2
3.	Existing 15 end of Runway 15/33 showing the Active Runway Crossing .....	5
4.	Extend 03 end of Runway 03/21 by 2,000 feet (Alternative 1&5).....	8
5.	Extend 15 end of Runway 15/33 by 1,500 feet (Alternative 1) .....	8
6.	Extend 03 end of Runway 03/21 with 2,000 foot Displaced Threshold (Alternative 2).....	9
7.	Extend 15 end of Runway 15/33 with 1,500 foot Displaced Threshold (Alternative 2).....	10
8.	Extend 15 end of Runway 15/33 by 600 feet (Alternative 4) .....	11
9.	Extend 33 end of Runway 15/33 by 900 feet (Alternative 4) .....	11
10.	Extend 15 end of Runway 15/33 by 1,300 feet (Alternative 5) .....	13
11.	Existing CZ and APZs at CAFB from CAFB 2004 AICUZ.....	23
12.	Flood Zone Map of the JUAF .....	26
13.	Shifted Noise Contour Prediction for Runway 03 Extension of 2,000 feet (Alternatives 1, 2, 4, and 5).....	33
14.	Shifted Noise Contour Prediction for Runway 15 Extension of 1,500 feet (Alternatives 1, 2, and 3).....	34
15.	Shifted Noise Contour Prediction for Runway 15 Extension of 600 feet (Alternative 4).....	35
16.	Shifted Noise Contour Prediction for Runway 15 Extension of 1,300 feet (Alternative 5).....	36
17.	Shifted Noise Contour Prediction for Runway 33 Extension of 900 feet (Alternatives 4 and 5).....	37

## **TABLES**

1.	Select airports throughout the Southeastern U.S.- longest runway length .....	3
2.	National Ambient Air Quality Standards .....	17
3.	Air Quality Monitoring Sites and Results in the Vicinity of CIAP .....	19
4.	Charleston PSD Maximum Allowable Increase.....	21
5.	Runway Improvement Alternatives and Associated Runway Extensions.....	30
6.	Population and Acreage within Existing 65 DNL and Greater Noise Exposure Area.....	31
7.	Population and Acreage Impacted Within Projected 65 DNL and Greater Noise Exposure Area.....	31
8.	Noise Sensitive Land Use Categories Associated with Proposed Runway Expansion Alternatives.....	32
9.	Current Effected Land Use and Estimated Effected Land Use of Proposed Alternatives by Acreage .....	38
10.	Threatened and Endangered Animal Species Recorded in Charleston County, South Carolina.....	41
11.	Threatened and Endangered Plant Species Recorded in Charleston County .....	41
12.	Total Wetlands Located in Project Area by Property.....	44
13.	Summary of Alternatives, Suitability for Meeting Project Goals .....	47
14.	Wetland Impacts Resulting from the Construction of Each Alternative .....	60
15.	Wetland Mitigation Proposed for the Impacts Resulting from the Runway 03/21 Extension.....	61

## **APPENDICES**

**Appendix A: Mailing List of Scoping Letters - DOPAA**

**Appendix B: Agency Response Letters**



## LIST OF ACRONYMS AND ABBREVIATIONS

437th AW	437th Air Mobility Wing
AFB	Air Force Base
AGL	Above Ground Level
AICUZ	Air Installation Compatibility Use Zone
AMC	Air Mobility Command
AOC	agents of concern
APE	Area of Potential Effects
APZ	Accident Potential Zone
AQCR	Air Quality Control region
AQCZ	Air Quality Control Zone
ASTM	American Society of Testing and Materials
ATC	Air Traffic Control
BAQ	Bureau of Air Quality
BASH	Bird Air Strike Hazards
BMP	Best Management Practices
BOW	Bureau of Water
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CAFB	Charleston Air Force Base
CCAA	Charleston County Aviation Authority
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CES/CEV	Squadron/Environmental Flight
CFR	Code of Federal Regulations
CIAP	Charleston International Airport
CO	carbon monoxide
CRDA	Charleston Regional Development Alliance
CWA	Clean Water Act
CZ	clear zone
dB	decibel
DERP	Defense Environmental Restoration Program
DNL	Day-Night Average Sound Level
DOD	Department of defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EO	Executive Order
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FEMA	Federal Emergency Management Administration
FIRM	Flood Insurance Rate Map
FOD	foreign objects and debris
FONPA	Finding of no Practical Alternative
FONSI	Finding of no Significant Impact
FPPA	Farmland Protection Policy Act
FY	Fiscal Year
HAZMAT	hazardous materials

HQ	headquarters
JUAF	Joint Use Airfield
kV	kilovolt
LCF	Large Cargo Freighter
MSL	mean sea level
MTOW	maximum take-off weight
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFA	No Further Action
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OCRM	Office of Ocean and Coastal Resource Management
PM	particulate matter
ppm	parts per million
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
SCDAH	South Carolina Department of Archives and History
SCDHEC	South Carolina Department of Health and Environmental Control
SCDNR	South Carolina Department of Natural Resources
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SOP	Standard Operating Procedure
SPCC	Spill Prevention Control and Countermeasures
SWMU	Solid Waste Management Unit
SWPPP	Storm Water Pollution Prevention Plan
T&E	Threatened and Endangered Species
TNW	Traditional Navigable Waters
tpy	tons per year
TSP	Total Suspended Particulates
U.S.C.	United States Code
UFC	UFC 3-260-01, Airfield and Heliport Planning and Design
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
VCC	Voluntary Cleanup Contract
VFR	Visual Flight rules
VGA	Vought - Global Aeronautica
VOC	Volatile Organic Compound
WoUS	Waters of the United States



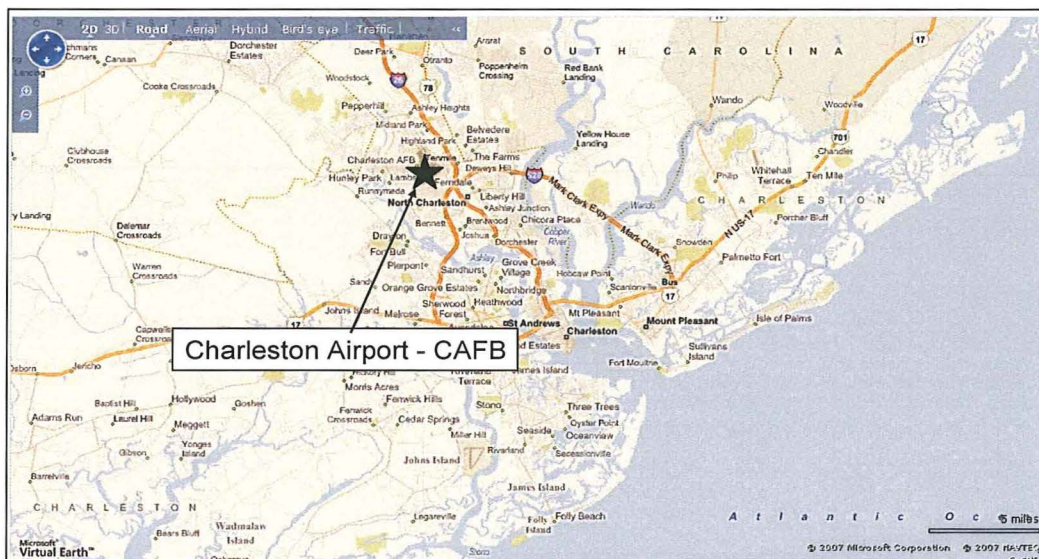
## 1.0 PURPOSE AND NEED FOR ACTION

### 1.1 Introduction/Background

Charleston International Airport (CIAP) and Charleston Air Force Base (CAFB) are located in Charleston County in southeast South Carolina, approximately 15 miles inland of the Atlantic Ocean. CIAP and CAFB lie within the coastal zone of South Carolina between the Ashley and Cooper Rivers. Surrounding land use is a mix of residential, commercial, industrial and vacant properties.

Charleston Municipal Airport began operations in 1931 and was activated as a U.S. Army Air Corps Base during World War II. This land was deeded to CAFB from the City of Charleston during WWII. CIAP currently operates off of Department of Defense (DoD) controlled runways under a joint-use agreement with Charleston County Aviation Authority (CCAA) for shared use of runways and navigational aids by civilian general aviation, commercial and military aircraft. CAFB encompasses 3,772 acres of property. The CCAA property consists of 1,420 acres located immediately south of CAFB. These two facilities share a common airfield. The location of this Joint Use Airfield (JUAF) is shown in Figure 1.

Figure 1: Location Map



The JUAF at Charleston has two runways positioned in a cross-wind orientation. The ends of the runways are identified by the whole number to the nearest one-tenth degree of the magnetic azimuth of the runway centerline when viewed from the direction of approach. The primary runway is oriented northwest to southeast and is designated as Runway 15/33 (9,001 feet in length). The secondary runway is oriented north-northeast to south-southwest and is designated as Runway 03/21 (7,004 feet in length). Figure 2 shows the existing airfield layout.



**Figure 2: Existing Airfield Layout**  
Runway 03/21 (7,004 feet) and Runway 15/33 (9,001 feet)



CCAA proposes to secure funding and award a construction contract to extend Runway 03/21 and Runway 15/33 as a significant improvement to the joint use facility. The purpose is to enhance the runway facilities for civil aviation, cargo, manufacturing and other civilian users of the airfield. Specifically, CCAA proposes to extend the 03 end of Runway 03/21 by 2,000 feet. Runway 15/33 would be lengthened to 10,500 feet by extending the 15 end by 600 feet and the 33 end by 900 feet. Current plans call for CCAA to begin the construction projects to run in conjunction with the Air Force funded repairs already scheduled for approximately fiscal year (FY) 2009 and approximately FY 2011. The extension of Runway 03/21 will prevent restrictions and interruption to service for the various commercial, cargo, manufacturing and other civilian users of the airfield by providing a continuous availability of a 9,000-foot runway during the repairs and improvements to Runway 15/33. The extension of Runway 15/33 to 10,500 feet will increase capacity and increase airfield versatility to be similar to other regional airports.

CAFB is currently scheduled to begin repairs on Runway 03/21 in approximately FY 2009 to provide paved overruns and graded cleared areas. Engineering plans are approved for this project and currently awaiting funding. This repair will consist of a complete re-construction and re-paving of the runway within its current footprint. This repair will take approximately one year. CAFB has also programmed for repairs on Runway 15/33 for approximately FY 2011. This repair will consist of a complete re-construction and re-paving of the runway within its current footprint. It will also take approximately one year. Timelines for runway repairs have been arranged so that at least one runway will be available for take-offs and landings during the construction phases of both projects.

This Environmental Assessment (EA) has been prepared to describe the proposed extensions of Runway 03/21 and Runway 15/33 for CCAA. This study will evaluate and detail effects that the proposed alternatives will have on human and natural environments such as wetlands, as well as permanent and temporary impacts to water quality, air quality, noise and other factors.

## 1.2 Purpose and Need

The purpose of the proposed project by CCAA is to provide an increased capacity to current and future users of the JUAF. The proposed action increases the overall length of both runways to better accommodate a wider range of aircraft types, to accommodate various weather conditions and to minimize, load and fuel variables that could restrict utilization of either runway. CCAA anticipates that extending Runway 15/33 will eliminate most restrictions/limitations on a minimum of four types of aircraft (747-400 Large Cargo Freighter (LCF), 747-200, 777, and DC-10). The extension of Runway 03/21 will prevent interruption to current service levels for the various cargo, manufacturing and other civilian users of the airfield by providing access to a 9,000 foot runway at any given time. The proposed extension would allow the CIAP to have similar capacity and capabilities at the JUAF as similar regional airports (Table 1).

**Table 1: Select airports throughout the Southeastern U.S. - longest runway length.**

City	Longest Runway
Greenville/Spartanburg	11,000
Myrtle Beach	9,503
Columbia	8,601
Savannah	9,351
Charlotte	10,000
Raleigh/Durham	10,000
Atlanta	11,890
Jacksonville	10,000
Nashville	11,030
Birmingham	10,000
Memphis	9,319

The CIAP currently serves the second largest metropolitan area in South Carolina, (Greenville/Spartanburg - 1, Charleston - 2, Columbia - 3 and Myrtle Beach - 4), yet possesses the second smallest primary runway compared to the four most populated areas in the state. The JUAF is the only facility serving major aircraft manufacturing in the state of South Carolina, and is also simultaneously home for a vital military airlift mission.

The community strives to grow its aeronautics manufacturing base. Since the beginning of design and construction for Boeing's newest commercial airliner, the 787 "Dreamliner", the JUAF has become a critical link in the supply chain to provide large component parts for this airliner. A joint venture, Vought - Global Aeronautica (VGA) selected Charleston to be the location for manufacturing the largest component part of this new aircraft, the fuselage, prior to its shipping to Boeing's Everett, Washington plant for final assembly. A modified 747-400 LCF

was specifically designed for this shipping task and is the critical aircraft being operated through CIAP at the JUAF. The 747-400 LCF when fully loaded requires a takeoff runway of at least 10,500 feet during a standard temperature day at the altitude of the CIAP with maximum take of weight (MTOW). The LCF requires a longer runway during days hotter than standard temperature, as is often typical in Charleston, South Carolina during summer months. This information was obtained from the aircraft manufacturer's Airport Planning Guide.

The CCAA has received correspondence from the Boeing Corporation and their sub-contractors (VGA and Evergreen International) responsible for production, shipping and delivery of the 787 Dreamliner. In this correspondence these parties express concern over the closure of Runway 15/33 for repairs in approximately FY 2011. Should the proposed extension of Runway 03/21 not occur before the repairs to Runway 15/33, the schedule and costs to ship the 787 components will likely be delayed and will certainly result in the need for the 747-400 LCF to take off with minimal fuel. This will result in the LCF making an immediate technical stop to refuel at a nearby airport with a sufficiently long runway in order to continue to the assembly facility. Evergreen International Airlines, Inc., the carrier, has indicated that this stop alone would cost an additional \$20K to \$25K per flight. It has been estimated by Boeing that by 2010, there may be as many as three flights per day affected by this closure.

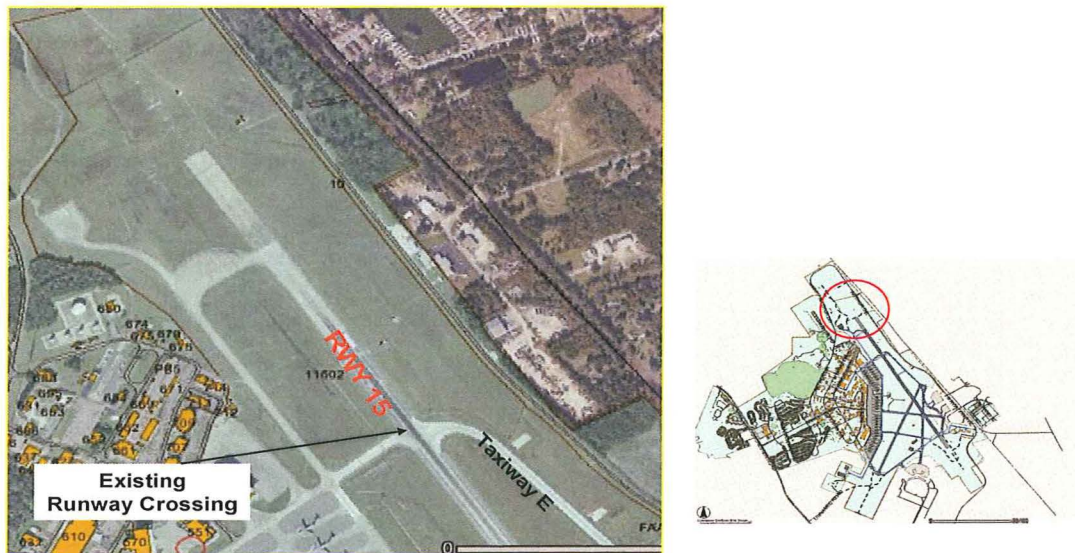
The Charleston Regional Development Alliance (CRDA) supports the community goal of continued economic development of the aeronautical industry in Charleston and this region of the state. Historically, site selection consultants will routinely eliminate potential aero-manufacturing sites with available runways less than 10,000 feet according to economic development professionals. Increased runway lengths will increase aircraft options, cargo capacity, efficiency and attractiveness of the facility for aeronautic related businesses.

As a landing point for domestic and international flights during emergency or other diversions, the CCAA maintains agreements with airlines to serve as an alternate landing airfield. When larger aircraft divert to CIAP, they may not be able to continue a flight with the original load under certain weather conditions due to existing runway lengths. This would be exacerbated during the anticipated FY 2011 closure of Runway 15/33 with only 7,004 feet of runway available on Runway 03/21. CIAP desires to continue serving all of the airlines and users and minimize limitations on their flight operations.

The proposed alteration of the taxiways at the 15 end of Runway 15/33 associated with the proposed lengthening will increase safety by eliminating the existing crossing of the active runway (Figure 3). This will increase the safety and flow of taxiing aircraft to access this runway. Runway incursions are a major safety concern for the FAA, and Charleston has had the highest runway incursion rate of airports in South Carolina since 2003 according to the "Report on Runway Safety" released by FAA in September 2007. Lengthening the runways and reducing active runway crossings will increase safety on take-off and landings, particularly during high traffic and inclement weather.



**Figure 3: 15 End of Runway 15/33**  
Existing conditions showing the taxiway crossing runway.



CAFB is currently planning for repairs of Runway 15/33 in approximately FY 2011, and has determined that the military airlift mission conducted at the JUAf will not be adversely impacted when workable temporary alternatives are considered. Flight operations at CAFB can be continued using Runway 03/21. CAFB is planning to continue operations using only Runway 03/21 even if it remains at 7,004 feet. The operational workaround may include restricting instrument flying as well as changes in air cargo loading plans, flight patterns and schedules.

### **1.3 Decisions to be Made**

This EA describes the needs for the proposed action outlined above, alternatives to the proposed action, as well as the no action alternative. The purpose of this document is to assist in the decision making process.

### **1.4 Scope of the Environmental Assessment**

This EA is prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality (CEQ) regulations, and the Air Force Environmental Impact Analysis Process (EIAP) published as 32 CFR Part 989. Several alternatives are described in the following sections and are evaluated for their potential consideration and analysis in the EA.

### **1.5 Applicable Regulatory Requirements and Required Coordination**

The EA has been prepared to assist CCAA and CAFB in complying with the following federal and state regulations and policies, which will be addressed in this EA:

- Clean Air Act (42 U.S.C. 7401 *et seq.*);

- Coastal Barrier Resources Act of 1982 as amended by the Coastal Barrier Improvement Act of 1990 (16 U.S.C. 3501-3510);
- Coastal Zone Management Act (South Carolina);
- Clean Water Act (CWA) 1977, Sections 401 and 404 (33 U.S.C. 1341 *et seq.*);
- U.S. Army Corps of Engineers (USACE) Wetlands Regulations (33 CFR Parts 230 *et seq.* and 320-330);
- U.S. Environmental Protection Agency (EPA) Section 404 (b)(1) Guidelines (40 CFR 230);
- Executive Order 11990 - Protection of Wetlands;
- Air Force Instruction (AFI) 32-7064 - Integrated Natural Resources Management, 1994;
- Coastal Zone Management Act of 1972 (16 U.S.C. 1456(c));
- Water Quality Improvement Act of 1974;
- Department of Defense Instruction (DoDI) 4715.3 - Environmental Conservation Program;
- National Environmental Policy Act (NEPA) and Council on Environmental Quality (CEQ) Regulations implementing NEPA;
- The Comprehensive Environmental Response Compensation and Liabilities Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA);
- Endangered Species Act (ESA) 1973, as amended;
- 40 CFR, Chapter I and V, Protection of Environment;
- Fish and Wildlife Coordination Act, 1965 (16 U.S.C. 661-666c);
- Migratory Bird Treaty Act of 1918;
- Interagency Agreement for Professional and Technical Assistance in Wildlife, Waterfowl and Wetlands Management between the Department of the Air Force and US Fish and Wildlife Service, dated 19 November 1992;
- Section 106 of the National Historic Preservation Act;
- Archeological Resources Protection Act Native Americans, 32 CFR part 229 and 43 CFR Part 7, Subpart B
- Sikes Act – 16 USC 670a-670o, 74 Stat. 1052 as amended.

## **2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION**

### **2.1 Alternative Evaluation Criteria**

Each alternative was evaluated based on the following criteria:

- Alternative improves or maintains CAFB compliance with UFC 3-260-01, *Airfield and Heliport Planning and Design*, for Class B Air Force runways;
- Alternative improves airfield versatility and prevents the disruption of access to a consistently open runway which can service all aircraft currently operating on the JUAF;
- Alternative will not increase the number of airfield waivers applicable to above criteria;
- Alternative is economically feasible;
- Alternative is located on the current JUAF and remains a shared use facility;
- Alternative minimizes or mitigates for impacts to environmental resources or the community;
- Alternative does not interfere with critical military airlift missions during or after construction;
- Alternative does not violate Federal Aviation Regulations (FAR);
- Alternative does not decrease the efficiency of runway operations; and,
- Alternative complies with all applicable Federal and State environmental regulations.

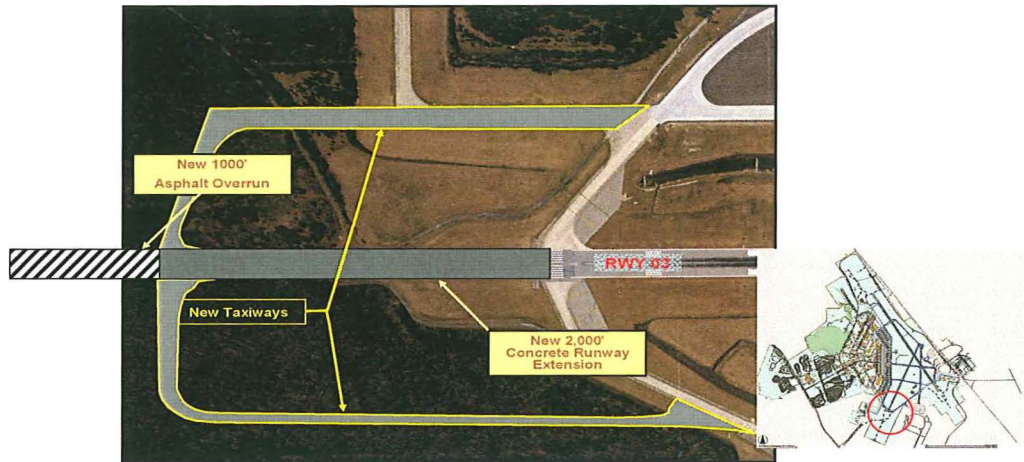
### **2.2 Alternatives Considered and Carried Forward**

#### **2.2.1 Extend Runway 03/21 to 9,000 feet, and Runway 15/33 to 10,500 feet (Alternative 1)**

The proposed action consists of two parts:

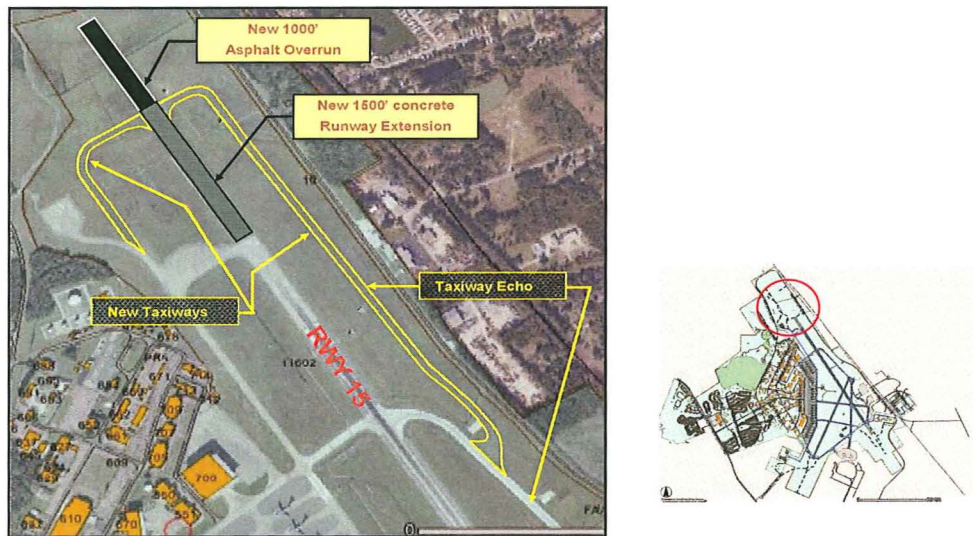
1. Extension of Runway 03/21 to 9,000 feet by lengthening the 03 end by 2,000 feet with 1,000 feet of paved overrun (Figure 4).

**Figure 4: 03 End Extension as Proposed for Runway 03/21 (Alternative 1)**  
 Adds 2,000 feet of runway and 1,000 feet of paved overrun to 03 end.  
 Also shown are proposed taxiways.



2. Extension of Runway 15/33 to 10,500 feet by lengthening the 15 end by 1,500 feet with 1,000 feet of paved overrun (Figure 5).

**Figure 5: 15 End of Runway 15/33 Extension (Alternatives 1 and 3)**  
 Adds 1,500 feet of runway and 1,000 feet of paved overrun to 15 end.  
 Also shown are proposed taxiways.



This alternative represents an airfield configuration giving the JUAF facility the most versatility with respect to aircraft capacity for take-offs and landings. The extensions of these two runways would be timed as closely as possible with CAFB's currently



scheduled repairs on these runways, in order to minimize disruption due to runway closures.

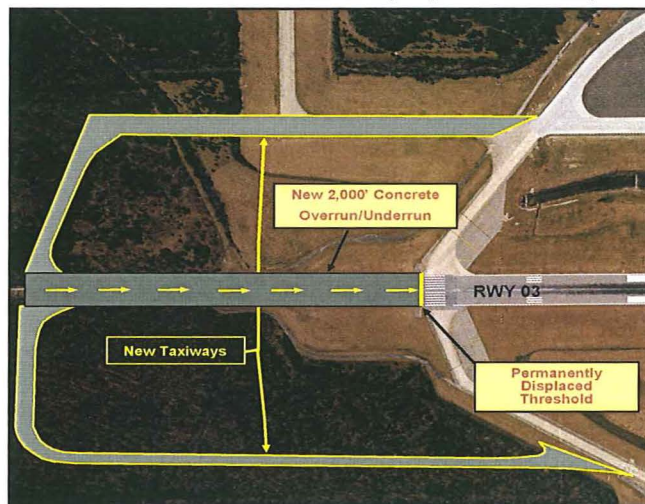
The extension of Runway 03/21 is proposed to occur within the same timeframe as CAFB runway repairs to Runway 03/21 beginning in approximately FY 2009 and would provide a 9,000 foot runway, available during the planned repairs to primary Runway 15/33 as well as during occasional closures of the primary runway for maintenance or other unforeseen situations. The extension of Runway 15/33 is proposed to occur within the same timeframe as CAFB runway repairs to this runway beginning in approximately FY 2011.

### 2.2.2 Extensions Using Displaced Thresholds (Alternative 2)

Under this alternative, Runway 03/21 would have a permanently displaced threshold and overrun of 2,000 feet added to 03 end (Figure 6), and Runway 15/33 would have a permanently displaced threshold and overrun of 1,500 feet added to the 15 end (Figure 7). This would allow aircraft taking off to use the additional lengths of paved overrun for takeoff from one direction only. Alternative 2 also extends taxiways to the areas of pavement that are designated as the Runway 03/21 and Runway 15/33 overruns.

**Figure 6: 03 End of Runway 03/21 With Permanently Displaced Threshold (Alternative 2)**

Adds 2,000 feet to 03 end. Addition to be used for takeoff from 03 end only. Also shown are proposed taxiways.

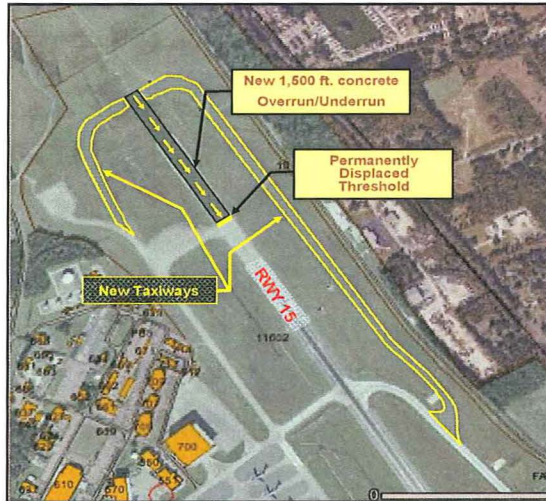


The takeoff direction would be roughly south-southeast for Runway 15/33, and roughly north-northeast for Runway 03/21. If wind vectors did not favor these takeoff directions, flight schedules or load plans may be disrupted. This alternative would restrict all landings (from any approach to CIAP) to the original runway length (7,004 feet for Runway 03/21 and 9,001 feet for Runway 15/33). This option is not preferred by the FAA due to the restrictions placed on the usage of the runways. HQ AMC has

determined that displaced thresholds are not preferred, however it does represent a feasible or acceptable alternative for CAFB.

**Figure 7: 15 End of Runway 15/33 With Permanently Displaced Threshold (Alternative 2)**

Adds 1,500 feet to 15 end. Addition to be used for takeoff from 15 end only. Also shown are proposed taxiways.



### 2.2.3 Extend Runway 15/33 to 10,500 feet (Alternative 3)

This design extends only Runway 15/33 by 1,500 feet on the 15 end (Figure 5). For airfield operations, during the closure of Runway 15/33 for its scheduled repairs in approximately FY 2011 and during regular maintenance closures, the airfield would have only Runway 03/21 at 7,004 feet runway length.

The closure of Runway 15/33 would potentially cause serious manufacturing, shipping/flight restrictions in the operations of the LCF. This aircraft is the critical aircraft currently to be operated at the CIAP, which requires a minimum takeoff runway of 10,500 feet on a standard temperature day at MTOW.

CAFB is currently planning for repair of Runway 15/33 in approximately FY 2011, and has determined that the current military airlift mission will not be adversely impacted. Flight operations would be continued using Runway 03/21. Workaround solutions may include restricting instrument flying, as well as changes in air cargo loading plans, fueling stops, flight patterns and schedules.

### 2.2.4 Extend Runway 03/21 to 9,000 feet, and Runway 15/33 to 10,500 feet (Alternative 4) – Preferred Alternative

This is the preferred alternative and it consists of two parts:

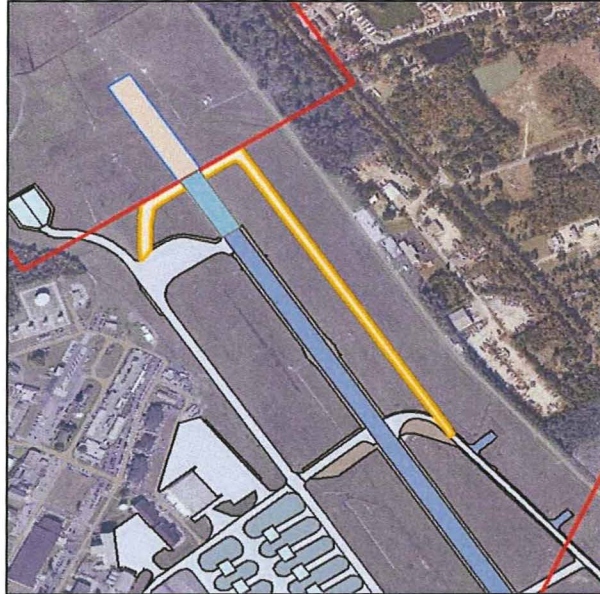
1. Extension of Runway 03/21 to 9,000 feet by lengthening the 03 end by 2,000 feet (Figure 4).



2. Extension of Runway 15/33 to 10,500 feet by lengthening the 15 end by 600 feet and the 33 end by 900 feet (Figures 8 & 9).

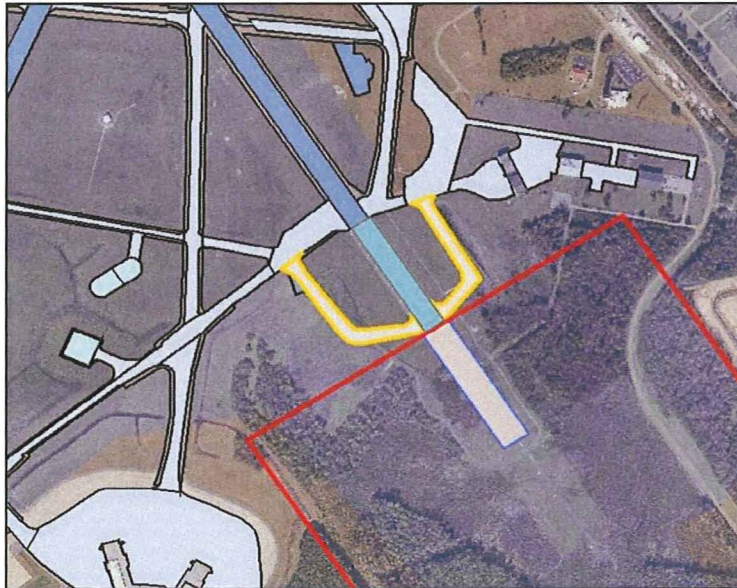
**Figure 8: 15 End of Runway 15/33 (Alternative 4)**

Adds 600 feet of runway and 1,000 feet of paved overrun to 15 end.  
Also shown are proposed taxiways.



**Figure 9: 33 End of 15/33 (Alternative 4)**

Adds 900 feet of runway and 1,000 feet of paved overrun to 33 end.  
Also shown are proposed taxiways.



This preferred alternative represents an airfield configuration giving the JUAF a constant 9,000 foot runway and added versatility on a permanent basis with respect to aircraft

capacity for take-offs and landings. The longer runways will be available for use in both directions for the full runway length.

The extension of the 03 end of Runway 03/21 is proposed to occur within the same timeframe as CAFB runway repairs to Runway 03/21 beginning in approximately FY 2009 and will provide a 9,000 foot runway during the planned repairs to Runway 15/33 as well as during occasional closures of the primary runway for maintenance or other unforeseen situations. The extension of Runway 15/33 is proposed to occur within the same timeframe as CAFB runway repairs to this runway beginning in approximately FY 2011 and would provide a 10,500 foot runway.

**2.2.5 Extend Runway 03/21 to 9,000 feet, and Runway 15/33 to 11,200 feet (Alternative 5)**  
This alternative consists of two parts:

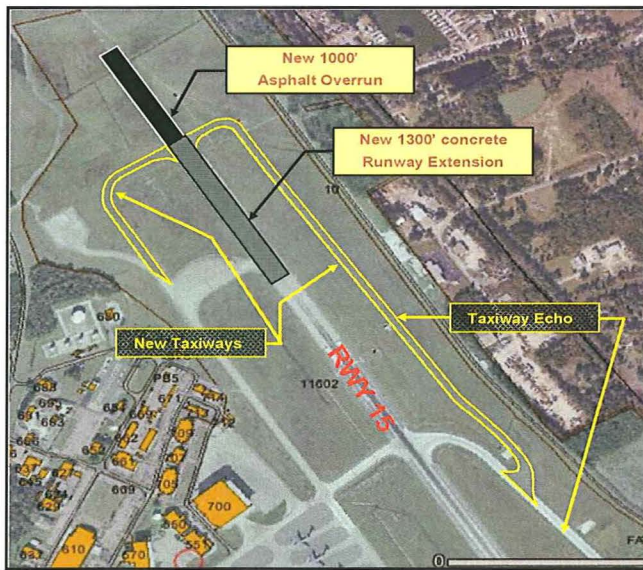
1. Extension of Runway 03/21 to 9,000 feet by lengthening the 03 end by 2,000 feet (Figure 4).
2. Extension of Runway 15/33 to 11,200 feet by lengthening the 15 end by 1,300 feet and the 33 end by 900 feet (Figures 9 & 10).

This alternative represents an airfield configuration giving the JUAF the greatest versatility with respect to aircraft capacity for take-offs and landings. The longer runways will be available for use in both directions for the full runway length. This option achieves the maximum limits for all aircraft that currently use the CIAP airfield under almost all foreseeable conditions.

The extension of the 03 end of Runway 03/21 is proposed to occur within the same timeframe as CAFB runway repairs to Runway 03/21 beginning in approximately FY 2009 and will provide a 9,000 foot runway during the planned repairs to Runway 15/33 as well as during occasional closures of the primary runway for maintenance or other unforeseen situations. The extension of Runway 15/33 is proposed to occur within the same timeframe as CAFB runway repairs to this runway beginning in approximately FY 2011 and would provide an 11,200 foot runway.



**Figure 10: 15 End of Runway 15/33 Extension (Alternative 5)**  
 Adds 1,300 feet of runway and 1,000 feet of paved overrun to 15 end.  
 Also shown are proposed taxiways.



### 2.2.6 No Action Alternative (Alternative 6)

Figure 2 shows the current airfield configuration representing this status quo alternative also known as the “do nothing” alternative. This option severely limits the civilian airfield capacity during closure of the primary runway for repairs during approximately FY 2011. This option would also not meet the needs of the CCAA’s airfield improvement plans, and would not serve to increase the capabilities of the joint use facility in providing for future growth of the civilian use of the airfield by heavy cargo, manufacturing and passenger flights. Additionally this option will impose severe restrictions and increased costs on the operation of the Boeing Dreamlifter and by extension the production of the new Boeing 787 during the run up into full production in the coming years.

## 2.3 Alternatives Considered and Not Carried Forward

### 2.3.1 Runway Relocation

This alternative is to construct a new 10,500 foot runway parallel to Runway 15/33 to replace the lost function of the primary runway during its closure in approximately FY 2011. Extensive re-design of the JUAF would be required. This alternative is not considered economically feasible, nor could the current JUAF configuration support additional consideration of this option.

### 2.3.2 Extend Runway 03/21 to 10,500 feet

For the duration of repairs on Runway 15/33 in 2011, this option would provide an adequate runway for uninterrupted services for current users of the airfield. It would also

provide the permanent 10,500 foot runway needed by CCAA. However, this alternative would not be feasible within the boundaries of the CCAA and CAFB properties, without significant impacts of re-locating or displacing nearby property owners. Additionally, it is likely that significant variances or waivers from the general criteria of UFC airfield design would be required.

### **3.0 AFFECTED ENVIRONMENT**

This section describes the environmental and anthropogenic resources with conditions most likely to be affected by the proposed action and provides baseline conditions from which to identify and evaluate the consequences likely to result from implementation of the proposed action.

Referenced baseline conditions represent the status quo conditions presented from the most recent available data. In compliance with NEPA, CEQ guidelines, and 32 CFR Part 989, as amended, the description of the affected environment focuses mainly on those resources and conditions potentially subject to impacts of the proposed action.

#### **3.1 Aesthetics**

Aesthetics are defined in the context of this project as the values of scenic beauty of a feature, or the presence of a vista which is enjoyed by the community at large for the relatively pristine or unique beauty attributed to the feature. These can include man made or natural features such as architectural works such as bridges or buildings, or a scenic view of a beach or a mountain range. Impacts to aesthetic features can include such things as visual obstructions, or disruption of the view of these features by structures or lighting.

No aesthetic features exist within the view shed of the JUAF. Within lines of sight of the project area are the CIAP terminal, general aviation terminal, several civilian, commercial and military hangars, taxiways, CAFB 437<sup>th</sup> Air Wing C-17 aircraft aprons and the airport/base perimeter road. Recently added facilities include the Vought – Global Aeronautica facility, which is producing aviation components such as the fuselage of the Boeing 787 “Dreamliner”. Extending out from the ends of the existing runways by 3,000 feet, and 1,000 feet to either side of the runway center line are cleared zones (CZ) in which trees and large obstructions have been removed for CAFB to comply with UFC (UFC 3-260-01, Airfield and Heliport Planning and Design) airfield criteria.

Within the existing JUAF there are approach lights to direct aircraft to the runway centerlines for landing, runway end lights, and lighting that delineates the edge of the runway and taxiways. This lighting system is fully contained within the JUAF and CAFB property. The lighting system includes High Intensity Runway Lights (HIRL). The HIRLs have a typical height of 14 inches above grade. Precision approach path indicator lights (PAPI) are present and will be extended with each alternative. However, these lights are directionally oriented towards incoming aircraft and are typically not visible to personnel on the ground.

#### **3.2 Air Quality**

The Clean Air Act (CAA) of 1972 and the subsequent amendments require that the U.S. Environmental Protection Agency (USEPA) develop programs and regulations, to implement, monitor, and enforce the applicable facets of compliance to protect the environment and public health and welfare by ensuring healthy ambient air quality. The USEPA requires that each state or local regulatory agency develop a program to meet the requirements and expectations of the CAA and subsequent federal amendments and regulations. The State or local regulatory agencies have developed programs to meet the approval of the USEPA under the CAA, which is referred to as a State Implementation Plan (SIP). The South Carolina Department of Health and Environmental Control (SCDHEC) is responsible for maintaining the requirements of the SIP in South Carolina.

The SIP addresses current requirements and ensures enforcement of USEPA requirements.

The USEPA developed air pollutant concentrations based standards defined as National Ambient Air Quality Standards (NAAQS). The pollutants applicable to NAAQS have been determined based on the prevention of negative health effects to human populations. The NAAQS classifies pollutant standards as primary or secondary pollutants based on risk-based permissible pollutant concentration levels. NAAQS maximum levels for primary pollutants established by the USEPA are considered safe in regard to the protection of public health over specific averaging periods. NAAQS are established for six criteria pollutants consisting of carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), ozone (O<sub>3</sub>), lead (Pb) and particulate matter (PM). Regulated particulate matter includes particle sizes less than or equal to 10 microns (PM<sub>10</sub>) and those equal to or less than 2.5 microns (PM<sub>2.5</sub>). Secondary NAAQS pollutants establish maximum concentrations to address the protection of general environmental resources such as vegetation, agricultural resources and visibility.

The USEPA, in order to determine concentrations of pollutants, measures each regulated pollutant by means of various units and time. The units of pollutants measured in ambient air are defined in parts per million (ppm), milligrams per cubic meter of air (mg/m<sup>3</sup>) or micrograms per cubic meter of air (ug/m<sup>3</sup>) depending on the pollutant. Time thresholds may be a one, three, eight or 24-hour average, quarterly average, or annual average.

Table 2 on the following page summarizes the NAAQS pollutants, standard values and standard types.

**Table 2: National Ambient Air Quality Standards**

Pollutant	Standard	Value	Standard Type
<b>CO</b>			
8-hour Average <sup>a</sup>	9 ppm	(10 mg/m <sup>3</sup> )	Primary
1-hour Average <sup>a</sup>	35 ppm	(40 mg/m <sup>3</sup> )	Primary
<b>NO<sub>2</sub></b>			
Annual Arithmetic Mean	0.053 ppm	(100 µg/m <sup>3</sup> )	Primary and Secondary
<b>O<sub>3</sub></b>			
8-hour Average <sup>b</sup>	0.08 ppm	(157 µg/m <sup>3</sup> )	Primary and Secondary
1-hour Average <sup>c</sup>	0.12 ppm	(240 µg/m <sup>3</sup> )	Primary and Secondary
<b>Pb</b>			
Quarterly Average		1.5 µg/m <sup>3</sup>	Primary and Secondary
<b>PM<sub>10</sub></b> <sup>d</sup>			
24-hour Average <sup>e</sup>		150 µg/m <sup>3</sup>	Primary and Secondary
<b>PM<sub>2.5</sub></b>			
Annual Arithmetic Mean <sup>f</sup>		15 µg/m <sup>3</sup>	Primary and Secondary
24-hour Average <sup>g</sup>		65 µg/m <sup>3</sup>	Primary and Secondary
<b>SO<sub>2</sub></b>			
Annual Arithmetic Mean	0.03 ppm	(80 µg/m <sup>3</sup> )	Primary
24-hour Average <sup>a</sup>	0.14 ppm	(365 µg/m <sup>3</sup> )	Primary
3-hour Average <sup>a</sup>	OS ppm	(1,300 µg/m <sup>3</sup> )	Secondary

Source: USEPA 2007a

Notes: Parenthetical values are approximate equivalent concentrations.

<sup>a</sup> Not to be exceeded more than once per year.

<sup>b</sup> To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

<sup>c</sup> The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1. (b) As of June 15, 2005, USEPA revoked the 1-hour ozone standard in all areas except the 14 8-hour ozone non-attainment Early Action Compact Areas.

<sup>d</sup> Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, USEPA revoked the annual PM<sub>10</sub> standard in 2006 (effective December 17, 2006).

<sup>e</sup> Not to be exceeded more than once per year on average over 3 years.

<sup>f</sup> To attain this standard, the 3-year average of the annual arithmetic mean PM<sub>25</sub> concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m<sup>3</sup>.

<sup>g</sup> To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m<sup>3</sup> (effective December 2006).



In accordance with the CAA, the USEPA requires local areas or sub-areas of a state or region be classified with respect to the NAAQS and that areas are classified with respect to the NAAQS. The local area defined and compared to NAAQS standards is defined as an Air Quality Control Zone (AQCZ). Each AQCZ is classified as attainment, non-attainment, maintenance or unclassified. Attainment indicates that an area is in compliance with NAAQS standards; whereas non-attainment indicates that an area exceeds NAAQS standards. The designation of maintenance indicates that an area was classified as a non-attainment area and presently meets attainment status. The designation unclassified indicates that there is presently not adequate information to determine a status in regard to NAAQS.

The greater Charleston / North Charleston area to include the location of the CIAP is designated as an attainment area by USEPA. The attainment status is based on outdoor air monitoring sites in various areas of Charleston County to include the vicinity of the CIAP.

Table 3 summarizes the SCDHEC air monitoring sites and the most recently available results within the vicinity of the CIAP. In the case of multiple stations in the vicinity of the CIAP, the results and the closest associated air monitoring station are listed. Table 3 also exhibits Charleston's background concentrations demonstrating compliance as an attainment area in accordance with the SIP and NAAQS. Federal actions must comply with the General Conformity Rule which requires undertakings meet the requirements of the SIP. The General Conformity Rule is only applicable in areas classified as non-attainment or maintenance areas. The proposed undertaking is located within an attainment area, does not create, or contribute to a violation of the NAAQS, and therefore is not applicable to the General Conformity Rule.

Major stationary sources of air pollution are required to be permitted under the CAA Amendments referred to as Title V. A major source is defined as a permanent source which has the potential to emit 100 tons of a single criteria pollutant, 10 tons of a single hazardous air pollutant, or 25 tons of any combination of hazardous air pollutants. Non-attainment areas require even more stringent maximum pollutant levels. This undertaking is within an attainment area and will not have any major sources constructed, therefore a Title V permit is not applicable to this project.

Prevention of Significant Deterioration (PSD) is a USEPA requirement applied to new major sources or major modifications to existing sources. A major source is defined as a permanent source which has the potential to emit 100 tons of a single criteria pollutant, 10 tons of a single hazardous air pollutant, or 25 tons of any combination of hazardous air pollutants annually. The standard is intended to maintain air quality in regards to "baseline" date. The state dictates baseline areas for which specific pollutants must have an incremental analysis to ensure that pollutant concentrations not only remain below the NAAQS permissible limits, but to also ensure there are no significant increases in these specific pollutant concentrations resulting from a single source. Each area of the state is classified as Class I, Class II or Class III depending on the land uses sensitivity to pollutants. The Classes defining land use take into account the sensitivity of the environment, for instance national parks (greater than 6,000 acres), memorials and wilderness areas (greater than 5,000 acres) are considered Class I, and less sensitive areas such as mixed use / commercial and industrial would be Class II and III respectively. Charleston is a Class II area with a minor source baseline date for PM<sub>10</sub>, SO<sub>2</sub>, and NO<sub>x</sub>. The PSD pollutant

limits are listed in Table 4.

As proposed, the undertaking will not have any major stationary sources or net increase in air pollutants, therefore PSD requirements will not apply.

**Table 3: Air Quality Monitoring Sites and Results in the Vicinity of CIAP**

Pollutant	Averaging Period	Type of Standard <sup>(1)</sup>	Background Concentration <sup>(2)</sup> ( $\mu\text{g}/\text{m}^3$ )	Monitoring Station Location	NAAQS Allowable Concentration ( $\mu\text{g}/\text{m}^3$ )	Attainment Status
Total Suspended Particulates TSP	Annual	Secondary	31.1	Jenkins Avenue Fire Station	75	Attainment
Particulate Matter (PM10) with a diameter $\leq 10 \mu\text{m}$	Annual	Primary and Secondary	19.4	Jenkins Avenue Fire Station	50	Attainment
	24-hour	Primary and Secondary	65	Jenkins Avenue Fire Station	150	Attainment
Particulate Matter (PM2.5) with a diameter $\leq 2.5 \mu\text{m}$	Annual	Primary and Secondary	12.1	Jenkins Avenue Fire Station	15	Attainment
	24-hour	Primary and Secondary	25.2	Jenkins Avenue Fire Station	65 <sup>(3)</sup>	Attainment
Sulfur Dioxide (SO <sub>2</sub> )	Annual	Primary	6	Jenkins Avenue Fire Station	80	Attainment
	24-hour	Primary	34	Jenkins Avenue Fire Station	365	Attainment
	3-hour	Secondary	99.5	Jenkins Avenue Fire Station	1300	Attainment
Nitrogen Oxides (NO <sub>x</sub> )	Annual	Primary and Secondary	15.4	Jenkins Avenue Fire Station	100	Attainment
Carbon Monoxide (CO)	8-hour	Primary	687	Cape Romain Wildlife Refuge	10000	Attainment
	1-hour	Primary	1145	Cape Romain Wildlife Refuge	40000	Attainment
Lead (Pb)	Calendar Quarterly Mean	Primary and Secondary	0.004	Jenkins Avenue Fire Station	1.5	Attainment
Ozone (O <sub>3</sub> )	8-hour	Primary and Secondary	0.079 ppm	Cape Romain Wildlife Refuge	0.08ppm <sup>(4)</sup>	Attainment
	1-hour	Primary and Secondary	0.09 ppm	Cape Romain Wildlife Refuge	0.12ppm	Attainment

NOTES:

1) Type of Standard: Primary Standards-Protects Human Health  
Secondary Standard-Protects Public Welfare

2) Background concentrations were obtained from Bureau of Air Quality 2007 Annual Report, using Charleston County values.

3) Current State Allowable Concentration ( $65 \mu\text{g}/\text{m}^3$ ) will be reduced to the current Federal Allowable Concentration ( $35 \mu\text{g}/\text{m}^3$ ) within 3 years.

4) Current State Allowable Concentration (0.08 ppm) will be reduced to the current Federal Allowable Concentration (0.075 ppm) within 3 years.

**Table 4: Charleston PSD Maximum Allowable Increase**

<b>Pollutant</b>	<b>Averaging Period</b>	<b>PSD Baseline Date</b>	<b>Maximum Allowable Incremental Increase (µg/m3)</b>
Particulate Matter (PM10) with a diameter ≤ 10 µm	Annual	11/30/1977	17
	24-hour	11/30/1977	30
Sulfur Dioxide (SO <sub>2</sub> )	Annual	11/30/1977	20
	24-hour	11/30/1977	91
	3-hour	11/30/1977	512
Nitrogen Oxides (NO <sub>x</sub> )	Annual	3/7/1989	25

The JUAF operations produce chiefly fuel exhaust pollutants from mobile sources such as aircraft, motor vehicles traversing off-site, ground service equipment, generators, and fuel storage related to transfer operations occurring on-site. The current conditions at the JUAF as a part of the Charleston community are in compliance with USEPA and SCDHEC - Bureau of Air Quality (SCDHEC-BAQ) standards as previously discussed.

A temporary air permit from SCDHEC may be required if an on-site concrete batch plant is deemed efficient for the construction tasks associated with this undertaking. The batch plant would supply concrete for the proposed undertaking of extending the runways. The contractor performing runway extensions or the entity responsible for operating any such temporary batch plant during construction activities would be responsible for obtaining the required permit. The permit applicable to the temporary source is classified as a Permit for a Minor Source. A Minor Source is defined as a source with the potential to emit less than 100 tons of criteria pollutant annually. The pollutant associated with the temporary source would be a criteria pollutant, specifically PM. This program of issuing air permits and ensuring compliance will be governed by SCDHEC under Standard No. 2 of SC regulation 61-62.5 as required by the CAA and the SIP. The temporary source would not affect the air quality status or impact the current air quality status at the project site, community, or region.

### **3.3 Compatible Land Use**

Land use is defined as a system of property classification to describe the current or proposed use of a parcel of land. The use can be one or a combination of many types, including but not limited to; industrial, commercial, residential, silviculture (forestry), agricultural, conservation, etc. In many cases, land uses are described in zoning laws – with specific terms and variations set forth in the rules adopted by the community. Often there is little consistency in terms and legal use definitions from place to place. Legal definitions can be changed through time, and individual property owners can and frequently do apply for zoning changes and variances. In the context of this project, the surrounding land uses include primarily developed properties (other than the vacant portions of the CCAA and CAFB properties). These developed properties consist a mix of residential, commercial and industrial properties.



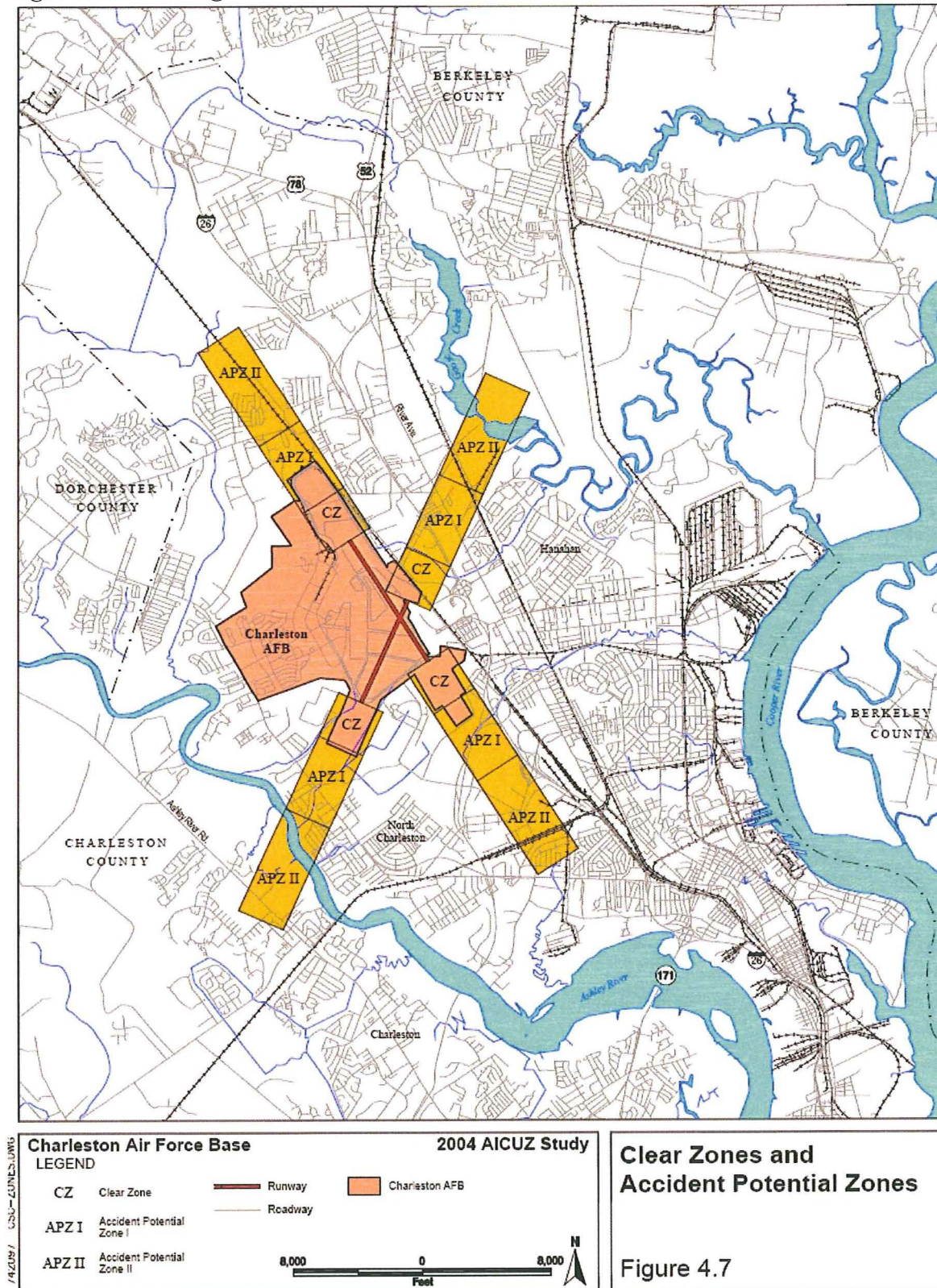
CAFB in compliance with USAF regulations prepared an Air Installation Compatibility Use Zone (AICUZ) study. The AICUZ program defines three runway safety zones: the clear zone (CZ), accident potential zone (APZ) I, and APZ II. These zones were developed from analysis of over 800 major Air Force accidents that occurred within 10 miles of an Air Force installation between 1968 and 1995. The CZ has the highest accident potential of the three zones, as 27 percent of accidents studied occurred in this area. Due to the increased risk of an accident, the Air Force adopted a policy of acquiring real estate interests in the CZ through purchase or easement when feasible. The CZ is a 3,000 by 3,000 foot area that begins at the runway threshold and continues to 3,000 feet away from the threshold including 1,500 feet either side of the extended runway center line.

APZ I is an area that possesses somewhat less accident potential than the CZ, with 10 percent of the accidents studied occurring in this zone. This 3,000 foot by 5,000 foot area has land use compatibility guidelines that are sufficiently flexible to allow reasonable economic use of the land, such as industrial/manufacturing, transportation, communication/utilities, wholesale trade, open space, recreation, and agriculture. APZ II has less accident potential than APZ I, with 6 percent of the accidents studied occurring in this zone. APZ II is less critical than APZ I, but still possesses potential for accidents. APZ II, also 3,000 feet wide, is 7,000 feet long extending to 15,000 feet from the runway threshold. Acceptable uses include those of APZ I, as well as low density single family residential and those personal and business services and commercial/retail trade uses of low intensity or scale of operation.

While the potential for aircraft accidents in APZs I and II do not warrant land acquisition by the USAF, land-use planning and municipal (zoning and planning) controls are strongly encouraged in these areas for the protection of the public. To the most practical extent possible, areas of high human population densities should be limited. In current CZs, CAFB maintains CZ rights on approximately 34 properties occurring near the ends of Runway 15/33 and approximately 55 properties in the existing CZ at the 21 end of Runway 03/21. These include mostly single family residential properties. The lots are encumbered by deed restrictions, which would preclude the construction or placement of any permanent obstacles (trees, buildings etc.) achieving heights ranging from between approximately 40 to 80 feet.

The existing CZs and APZs from the 2004 AICUZ are shown in Figure 11. Since this latest study and almost continuously since the late 1990's there has been an increase in development of residential, commercial and industrial properties in most areas around in the metropolitan Charleston areas including North Charleston, Hanahan, and West Ashley – particularly near the boundaries of APZ I and APZ II. The properties adjacent to the CIAP and CAFB include residential, commercial industrial and some vacant lands. Immediately adjacent properties within the runway clear zones (CZ) are currently restricted in the types of development by deed restrictions put into place by CAFB. The restrictions include building height restrictions and other activities which could impede CAFB from safely accomplishing its airlift capability mission. The AICUZ is a guide to the community, and government officials to aid in determining appropriate development; it is not a mandate to stop development.

**Figure 11: Existing CZ and APZs at CAFB from CAFB 2004 AICUZ.**



### **3.4 Ecologically Sensitive Areas**

Ecologically sensitive areas are defined as rare ecosystems, areas where minor physical or chemical disturbance can result in disruption of ecosystem structure or function. Examples of such areas include certain types of estuarine habitats, shellfish beds and reefs. No regulatory apparatus exists for the protection of such areas specifically; however, in the coastal zone of South Carolina, the salt marshes (estuaries) are protected and regulated by the SCDHEC – Office of Ocean and Coastal Resource Management (OCRM). No areas within the boundary of an OCRM identified estuary (also known as a “critical area”) may be impacted without the coordination of a permit through that agency.

No “critical” or other ecologically sensitive areas located within or adjacent to the proposed project footprint are deemed to be “ecologically sensitive” by any regulatory definition. The CCAA and CAFB properties do contain some intact bottomland hardwood forested habitats (outside of current cleared zones). These wooded areas consist of common southeastern mixed pine and hardwood forest and animals typical of these forest types. Outside the boundaries of the CCAA and CAFB properties approximately 1 mile to the southwest of the 03 end of Runway 03/21 are estuarine marshes of the Ashley River.

### **3.5 Health and Safety**

The definition of a safe environment is one in which there is a minimized risk for potential for death, serious bodily injury or property damage. Having a healthy and safe environment is usually the result of the collective safety awareness of the individuals within the area. Prevention measures to achieve safe conditions include proper planning, training, equipment, resources and various types of health and safety plans.

The CCAA and CAFB properties are currently managed to promote safety of individuals and the property. Movement safety rules in the area are dictated by the airfield manager and the Federal Aviation Administration (FAA) control tower, with whom all persons must coordinate to enter, operate in, or move about on. All access to the airfield is strictly controlled and safety briefings, tests, and a stringent airfield driver training program is in place to insure all drivers understand the rules and procedures when moving on and around the airfield. Active runways are to be crossed only with permission of the FAA air traffic control tower. All ground vehicles and personnel accessing the JUAf must coordinate with CAFB airfield manager.

Other safety programs involve the reduction in Bird Aircraft Strike Hazard (BASH) and reduction of Foreign Objects & Debris (FOD). These programs involve minimizing the likelihood of bird strikes and interference of FOD with aircraft in flight or on takeoff and landing. Passive methods (awareness and prevention) for reducing bird populations and thereby risk of strikes are used. All CIAP and CAFB personnel as well as contractors are required to actively prevent and remove FOD from aircraft movement areas as they encounter it, thereby reducing the risk of damage to aircraft and the potential for injuries. CAFB fire rescue squadron is currently the primary responding emergency services agency should an airfield emergency arise.

Within the APZs, there has been increasing urban growth, including new commercial and residential developments. Among these are large retail stores, some four hotels and several

restaurants in the Center Point development as well as single and multi-family residential developments on the Dorchester Road side (southwest) of CAFB. These developments, which may be located in either APZ I or APZ II are allowed, however they are not optimally sited for maximum safety in the unlikely event of an airplane accident. The APZs are determined to maximize safety for personnel on the ground, and the higher the concentration of personnel on the ground in an area in which the rare incident occurs, the higher the risk of property damage, injuries and fatalities.

### **3.6 Farmlands**

This section discusses prime unique farmlands. Throughout the 20<sup>th</sup> century many of the nation's prime unique farmlands have been converted for urban and suburban development. Because of this trend, the U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS) has begun cataloging and identifying prime farmlands which should be protected. These prime farmlands include those lands that have the best physical and chemical characteristics for producing items such as food, feed, or fiber, and which have not already been impacted by urban development, water shortages or other phenomena which would inhibit production.

A regulation, known as the Farmland Protection Policy Act (FPPA) of 1981 was enacted to minimize the extent to which Federal projects or programs will impact prime farmlands. If a proposed Federal action involves acquiring farmlands that will be converted to a non-agricultural use, it must be determined whether any of the land is protected by the FPPA. No NRCS-designated protected farmland areas are present on or around the CCAA and CAFB properties or will be within proximity to the project. Therefore, no description of such areas is included in this study.

### **3.7 Floodplains**

Floodplains are designated by the Federal Emergency Management Agency (FEMA) and are delineated on Flood Insurance Rate Maps (FIRM). The program administered by FEMA for the enforcement of floodplain compliance involves the assessment of the risk of flooding over the life of a project or property.

The zone designations are related to the risk of flooding over an annualized basis and the chance of flooding during the life of a 30-year mortgage loan on a subject property. Flood zones B, C and X are outside of the zone where flooding risk is 1% annual chance or greater. These low risk zones are used interchangeably in different regions of the country; however, the letter designation represents a low risk. Property owners are not required to purchase flood insurance in these areas. Zones A, AE and A1-A30 are areas that have a greater than 1% chance of flooding annually, with a 26% chance of flooding during the life of a 30-year mortgage. These areas may include a specific base flood elevation, and rules pertaining to the elevations of new construction must be followed for building to be approved. Also, property owners who construct on, obtain a mortgage, or buy a property within this zone must also purchase flood insurance as a supplement to standard hazard insurance.

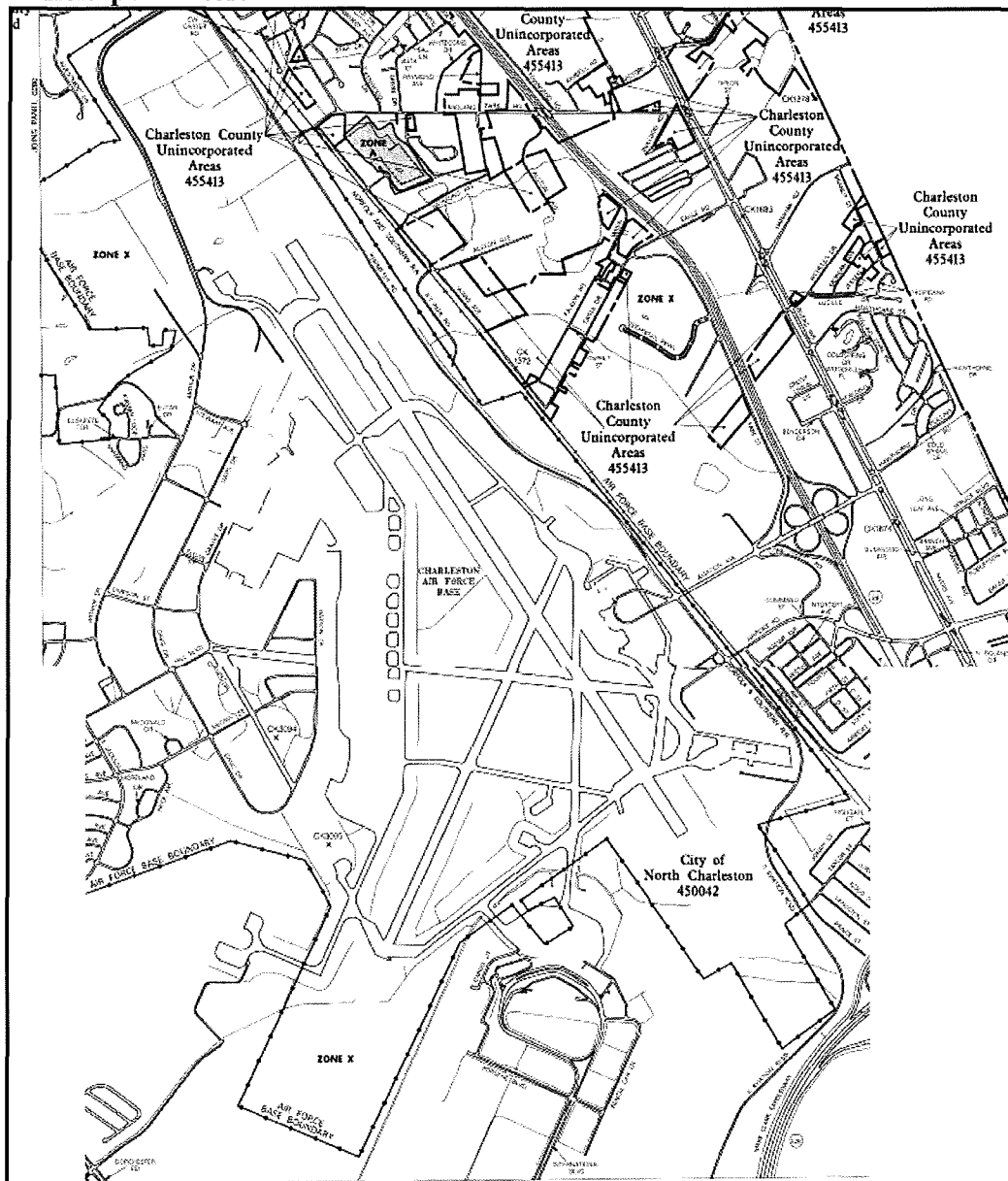
Communities that participate in the National Flood Insurance Program (NFIP) require all properties in a flood zone to have supplemental flood insurance. Charleston County is a



participant in the NFIP. Development activities in and near flood zones require that project engineers certify that a “no rise” condition will exist post construction with both local and federal agencies reviewing permits to determine that flooding affects are mitigated.

The project area is shown on the attached Firmette (flood map) in Figure 12. The JUAF is located entirely within flood zone X, as shown on Flood Insurance Rate Map. Extensive drainage ditches, retention ponds and basins are located around the airfield to reduce the risk of flooding. The project site does not have a history of flooding because of the extensive stormwater management facilities maintained by the CCAA and CAFB. The areas within the JUAF are compliance with FEMA regulations, as no flood zones are located in this area.

**Figure 12: Firmette (by FEMA) Flood Zone Map of the JUAF, note no “A” flood zones within airfield perimeter.**



### 3.8 Hazardous Materials

A Phase I Environmental Site Assessment (ESA) was conducted for the CCAA per (American Society of Testing and Materials (ASTM) 1527-05 standards to identify *recognized environmental conditions* in connection with the project area, which included the 03 end of Runway 03/21 and the 15 and 33 ends of Runway 15/33. The Phase I ESA was conducted to address potential NEPA requirements for the proposed runway expansion. No sites determined to be affected by this project other than those described below were located within the ASTM specified search radii. The Phase I ESA found no evidence of *recognized environmental conditions* in connection with the subject property.

Releases of hazardous substances to the environment are federally regulated by the United States Environmental Protection Agency (EPA) under various statutes including, but not limited to:

- Resource Conservation and Recovery Act (RCRA), Title 42 U.S.C. § 6901, *et seq.* RCRA primarily governs the disposal of wastes (including hazardous wastes), but also governs the cleanup of contaminated sites under the corrective action program.
- Comprehensive Environmental Response Compensation, and Liability Act (CERCLA), Title 42 U.S.C § 9601, *et seq.* CERCLA, also known as “Superfund,” primarily governs the identification, assessment, and remediation of releases of hazardous substances to the environment that may threaten human health or the environment. It also establishes the EPA as the regulatory enforcement agency.
- Superfund Amendments and Reauthorization Act of 1986 (SARA), including Section 211, Defense Environmental Restoration Program (DERP), 10 U.S.C. § 2701, *et seq.* SARA extended the requirements of CERCLA and modified the remedial process. It also established the DERP to address releases of hazardous substances to the environment at facilities under the jurisdiction of the Department of Defense.

The proposed project area is on property under the jurisdiction of the United States Air Force (USAF). The USAF Environmental Restoration Program (USAF-ERP) was established to assess and remediate releases of hazardous substances to the environment at properties under the jurisdiction of the USAF. The USAF-ERP was established to be consistent with RCRA, CERCLA, and SARA; the programs’s procedures are specified in *Air Force Instruction 32-7020, 7 February 2001, The Environmental Restoration Program*. The assessment and remediation of areas at CAFB where releases of hazardous substances have occurred is conducted in a manner consistent with USAF-ERP and in accordance with the requirements of CAFB’s RCRA Part B Permit and the South Carolina Department of Health and Environmental Control (SCDHEC), who has regulatory enforcement authority for environmental assessment and remediation activities at CAFB. The SCDHEC was granted regulatory authority by the EPA.

The three proposed runway extension areas are located at the 03 end of Runway 03/21, and on the 15 and 33 ends of Runway 15/33. A 1995 Charleston AFB RCRA Facility Investigation identified three Solid Waste Management Units (SWMUs) located within the vicinity of the 03 end of Runway 03/21 extension area and two SWMUs located within the vicinity of the 33 end of Runway 15/33 extension area.

SWMUs 53, 60, and 71 are located in the vicinity of the 03 end of Runway 03/21 and were included within the Zone 1 boundary, which was established in 1984 by CAFB to allow for the combined assessment of these three SWMUs based on their close proximity to each other. SWMU 53 was the location of Fire Protection Training Area No. 1 that was used from 1960 to 1965. The area consisted of a pit with an earthen berm and a limestone base that was used for the controlled burning of flammable wastes during fire training exercises. SWMU 60 was the location of Hardfill Area No. 3 where concrete, office furniture, empty drums and cans, scrap wood, and coal ash were reportedly disposed from 1960 to 1965. SWMU 71 was the location where coal ash was disposed from 1952 to 1973.

As part of ERP, environmental assessments of Zone 1 began in 1985 and have continued to the present. In 2006, waste delineation activities, including geophysical surveys (using a combination of three geophysical instruments) and 12 test pit excavations, were conducted in Zone 1. Industrial and residential type wastes (concrete slabs, scrap metal, wood, plastic, and refuse) were observed in the test pits at maximum depths of 6 feet below ground surface (bgs). In addition, approximately 30 empty containers, including 55-gallon drums, were removed from Zone 1 and properly disposed. The extent of the buried material in Zone 1 was estimated to be approximately 15.8 acres. There are currently eight groundwater monitoring wells located in the area of Zone 1. A summary of previous environmental investigations conducted for Zone 1 is provided in the August 17, 2007 RCRA Facility Investigation Report prepared by TETRA TECH NUS, Inc.

SWMU 58 and SWMU 70 are located in the vicinity of the 33 end of Runway 15/33 and were included within the Zone 3 boundary, which was established in 1984 by CAFB to allow for the combined assessment of these two SWMUs based on their close proximity to each other. SWMU 58 was the location of Hardfill Area No. 3 where construction rubble, landscape wastes, and empty cans and buckets were reportedly disposed from 1952 to the mid 1970s. SWMU 70 was the location where coal ash from CAFB Heating Plan was disposed from 1952 to 1972.

As part of ERP, environmental assessments of Zone 3 began in 1985 and have continued to the present. In 2006, waste delineation activities, including geophysical surveys (using a combination of three geophysical instruments) and eight test pit excavations, were conducted in Zone 3. Industrial type wastes including concrete, scrap metal (piping, paint cans and automotive parts), and wood were observed in the test pits at maximum depths of 6 feet bgs. The extent of the buried material in Zone 3 was estimated to be approximately 13.8 acres, although the results of the waste delineation were limited due to standing water and shallow groundwater. There are currently seven groundwater monitoring wells located in the area of Zone 3. A summary of previous environmental investigations conducted for Zone 3 is provided in the August 17, 2007 RCRA Facility Investigation Report prepared by TETRA TECH NUS, Inc.

In the January 11, 2008 SCDHEC letter, the SCDHEC concurred with recommendations of no further action for SMWUs 53 and 71 in Zone 1 and SWMU 70 in Zone 3, but stated that groundwater monitoring should continue for SWMUs 58 and 60. The letter also stated that land use controls (LUCs) should be applied to SWMUs 58 and 60 because of the presence of buried industrial and residential wastes.

### **3.9 Historic and Cultural Resources**

Historic and cultural resources include historic properties and structures, archaeological sites, and locations of special cultural interest including areas sacred to Native Americans. Regulations implementing the National Environmental Policy Act require that the environmental analysis of an undertaking identify any unique characteristics of the geographic area such as proximity to historic or cultural resources (40 CFR 1508.27). In addition, the degree that the action may adversely affect cultural resources listed in or eligible for listing in the National Register of Historic Places (NRHP) must be considered (40 CFR 1508.27).

Additionally, Section 106 of the National Historic Preservation Act requires that federal agencies identify and “take into account” the effects of their actions on significant historic properties which are those historic and cultural resources listed on or eligible for the National Register of Historic Places. The regulations of the Advisory Council for Historic Preservation (36 CFR 800) describe the process for compliance with Section 106, including defining the Area of Potential Effect (APE), steps to identifying resources, evaluate effects, and consult with interested parties including the State Historic Preservation Office (SHPO). The APE for effects to archaeological resources consists of the footprint of the project and any adjoining areas of related ground disturbance, such as parking areas, access roads, etc. The APE for historic architectural and other types of resources generally extends beyond the archaeological APE to include view sheds to and from historic and cultural resources and the project area, and areas that might be affected by noise, vibration, and other effects.

A survey to identify and assess potential effects to historic and cultural resources was completed by S&ME, titled *A Cultural Resources Investigation of the Runway 03/21 and 15/33 Extension, Charleston International Airport, Charleston, South Carolina*, dated January 2008. No archaeological resources were identified in the APE. While CAFB includes a potentially significant archaeological site (Andre Michaux Garden - 38CH1022) on land that was recently acquired, it is not included in the proposed undertaking’s Area of Potential Effect, and it will not be affected by the proposed runway extension. While the Ashley River Historic District lies within the APE for historic resources, it was concluded that the proposed undertaking will have no adverse effect on that resource. The SHPO, in a letter received on February 28, 2008 concurred with these findings and agreed that that this project does not require any additional studies before construction. They do state that if unanticipated discovery of archeological materials take place during construction or excavation, their office should be notified in accordance with provisions of the existing Integrated Cultural Resources Management Plan (ICRMP) for CAFB and of 36 CFR 800.13.

In accordance with the Catawba Indian Nation’s request for a copy of any archaeological survey completed as part of this project, a copy of the historic and cultural resources report was transmitted to the Tribal Historic Preservation Officer on May, 20, 2008.

### **3.10 Noise**

Noise and sound share the same physical aspects except that noise is an unwanted, undesirable sound or an audible disturbance. Noise may interfere with communication aspects, damage hearing or is viewed as an annoyance. Sound levels received by the human ear are influenced by the noise source type, characteristics, time of day, and distance between source and receiver.



Currently, regular aircraft operations at the JUAF are the source of noise impacts, particularly during times of heavy air traffic. The civilian air fleet at the CIAP and at the general aviation facility consists of a variety of private small propeller driven aircraft, small to medium corporate jets, commercial airliners ranging from small commuter jets to larger regional jets, and the new 747-400 modified “Dreamlifter” utilized by the VGA manufacturing facility. CAFB air operations consist mainly of the operation and maintenance of an airlift wing of C-17 “Globemaster” aircraft. This aircraft is utilized by AMC to transport military personnel, troops and material to and from intra-continental and overseas positions and bases.

Noise studies previously conducted by CAFB are included in the Air Installation Compatible Use Zone (AICUZ) study dated 2004. These studies identify the noise contours that result from air craft operations at the JUAF and recommend compatible land uses. Local communities and governments are encouraged to incorporate the recommended land uses in developing their planning and zoning policies.

To develop general information on the potential noise levels that people in the affected area would experience, we compared the extended noise profiles provided by the 2004 AICUZ study for each of the six runway improvement alternatives (Table 5) at Runways 03, 15, and 33 to the current land use and contours. Runway 21 is not extended as part of the proposed project, and there is no expectation of change in noise profiles or exposure levels associated with Runway 21. This analysis included estimating the residential population as well as identifying the locations of noise-sensitive land uses.

**Table 5: Runway Improvement Alternatives and Associated Runway Extensions.**

<b>ALTERNATIVE</b>	<b>Runway 03</b>	<b>Runway 15</b>	<b>Runway 33</b>
<b>1</b>	2,000 feet	1,500 feet	No Change
<b>2<sup>a</sup></b>	2,000 feet	1,500 feet	No Change
<b>3</b>	No Change	1,500 feet	No Change
<b>4</b>	2,000 feet	600 feet	900 feet
<b>5</b>	2,000 feet	1,300 feet	900 feet
<b>6<sup>b</sup></b>	No Action	No Action	No Action

<sup>a</sup>Alternative 2 calls for a displaced threshold at both Runways 03 and 15 and would not result in a change in existing noise contours.

<sup>b</sup>Alternative 6 would result in no alteration of existing noise contours.

The *Charleston Air Force Base Airfield Master Plan* (2007) estimated the population subject to off-base noise exposure equal to or greater than Day-Night Average Sound Level (DNL) 65 dB to be 15,155 (Table 6).

**Table 6: Population and Acreage within Existing 65 DNL and Greater Noise Exposure Area<sup>a</sup>.**

<b>DNL Noise Level</b>	<b>Acres</b>	<b>Population</b>
65-69	5,132	12,755
70-74	1,893	2,338
> 75	1,474	62

a: Date from *Charleston Air Force Base Airfield Master Plan* (2007:5-5 Table 9)

Table 7 shows the variations of effects on populations associated with the shift of these noise contour lines and Table 8 shows the variation in land use categories affected by the noise contour shifts. Their estimate, based on United States Census Bureau (2000) data, assumed equal population distribution within a census tract.

**Table 7: Population and Acreage Impacted Within Projected 65 DNL and Greater Noise Exposure Area. Note – Alternatives displayed are only those that change the contours.**

<b>Alternative 1</b>				
<b>DNL Noise Level</b>	<b>Acres</b>	<b>Land %*</b>	<b>Population</b>	<b>Population %*</b>
65-69	5,345	+ 4.2	13,285	+ 4.2
70-74	1,971	+ 4.1	2,435	+ 4.1
> 75	1,568	+ 6.4	66	+ 6.5
<b>Alternative 3</b>				
<b>DNL Noise Level</b>	<b>Acres</b>	<b>Land %*</b>	<b>Population</b>	<b>Population %*</b>
65-69	5,212	+ 1.6	12,953	+ 1.6
70-74	1,920	+ 1.4	2,372	+ 1.4
> 75	1,554	+ 5.4	66	+ 5.4
<b>Alternative 4</b>				
<b>DNL Noise Level</b>	<b>Acres</b>	<b>Land %*</b>	<b>Population</b>	<b>Population %*</b>
65-69	5,313	+ 3.5	13,205	+ 3.5
70-74	1,953	+ 3.2	2,413	+ 3.2
> 75	1,631	+ 10.7	69	+ 11.2
<b>Alternative 5</b>				
<b>DNL Noise Level</b>	<b>Acres</b>	<b>Land %*</b>	<b>Population</b>	<b>Population %*</b>
65-69	5,292	+ 3.1	13,153	+ 3.1
70-74	2,038	+ 7.7	2,517	+ 7.7
> 75	1,554	+ 5.4	65	+ 4.8

\*Note: these percentages reflect and increase or decrease

By using the 2000 census data as a baseline and assuming equal population distribution, we estimate that the proposed project will expose a population to noise levels of DNL 65 dB or greater between the existing documented levels from 2007 Master Plan of 15,155 (Alternatives 2 or 6) and 15,786 (Alternative 1). The land populations impacted by the proposed project were estimated based on the 2004 AICUZ graphic of projected noise contours. Changes will occur in all of the proposed alternatives, except Alternatives 2 and 6 which will not require a change in current noise contour lines.

The proposed extension of Runways 03, 15, and 33 will not change the exposure to five of the six existing noise sensitive land uses (Table 8). These five sites are currently within the DNL 65 dB contour and will remain within this contour after the proposed plan is implemented. The extension of Runway 03 will decrease exposure to one noise-sensitive use (Collins Park and swimming pool).

Collins Park (including a swimming pool) is projected to lie outside the DNL 65 dB contour after the proposed expansion of Runway 03 based on the extended contours. The Collins Park is the only noise sensitive land use presently within the DNL 65 dB contour that will have altered exposure levels. The projected changes in sound contours will not increase the level of exposure to the other five noise sensitive receptors. These noise sensitive land uses are addressed in Table 8.

**Table 8: Noise Sensitive Land Use Categories Associated with Proposed Runway Expansion Alternatives.**

<b>Name</b>	<b>Location: Runway /Address</b>	<b>Current</b>	<b>Projected</b>
Collins Park and Swimming Pool <sup>a</sup>	RW 03 / 4155 Fellowship Road	DNL 65 dB	<DNL 65 dB*
Beta-Tech Technical School	RW 15 / 8088 Rivers Avenue	DNL 65 dB	DNL 65 dB
Living God Ministries	RW 15 / 2720 Midland Park Road	DNL 65 dB	DNL 65 dB
Power Ministries	RW 15 / 7269 Cross Country Road	DNL 65 dB	DNL 65 dB
Church of the Living God	RW 33 / 4755 Rivers Avenue	DNL 65 dB	DNL 65 dB
New Victory Temple	RW 33 / 4754 Rivers Avenue	DNL 65 dB	DNL 65 dB
Morningside Middle School	RW 33 / 1999 Singley Street	DNL 65 dB	DNL 65 dB

<sup>a</sup> Collins Park and Pool will experience less noise as a result of pursuing Alternatives 1, 2, 4, and 5 when Runway 03 is extended.

Several figures from the *Charleston Air Force Base Airfield Master Plan* (2007) representing predicted noise contour shifts resulting from the different runway lengthening alternatives are provided as Figures 13 through 17 for reference.

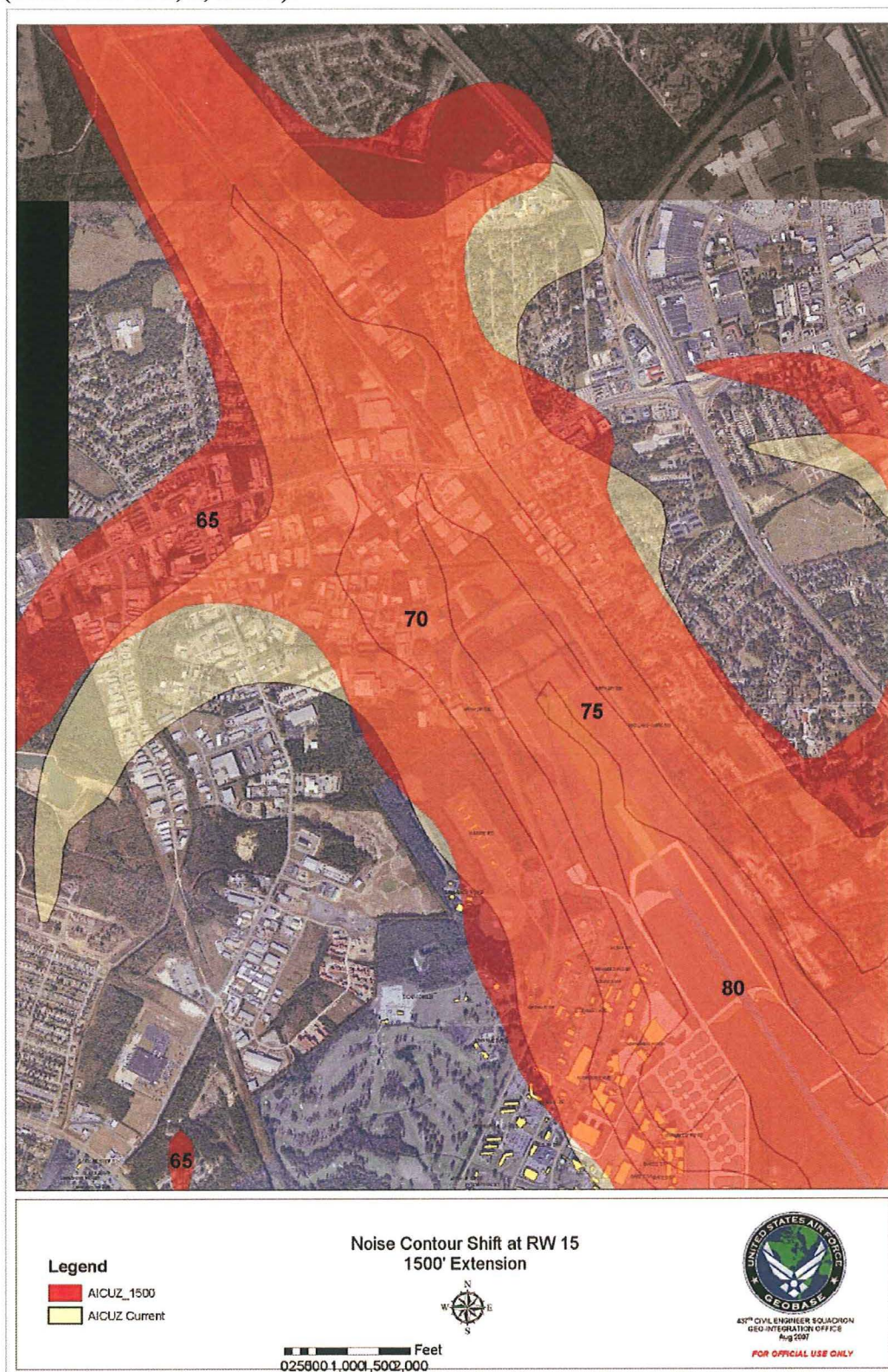
The current affected land use is presented in Table 9 with the estimated changes in acreage for the proposed alternatives. Alternatives 1, 4, and 5 are the only alternatives that show an acreage increase in the affected land use due to the extension of Runway 03 being included in these alternatives.

**Figure 13: Shifted Noise Contour Prediction for Runway 03 Extension of 2,000 feet (Alternatives 1, 2, 4, and 5). Note the location of Collins Park and Pool.**



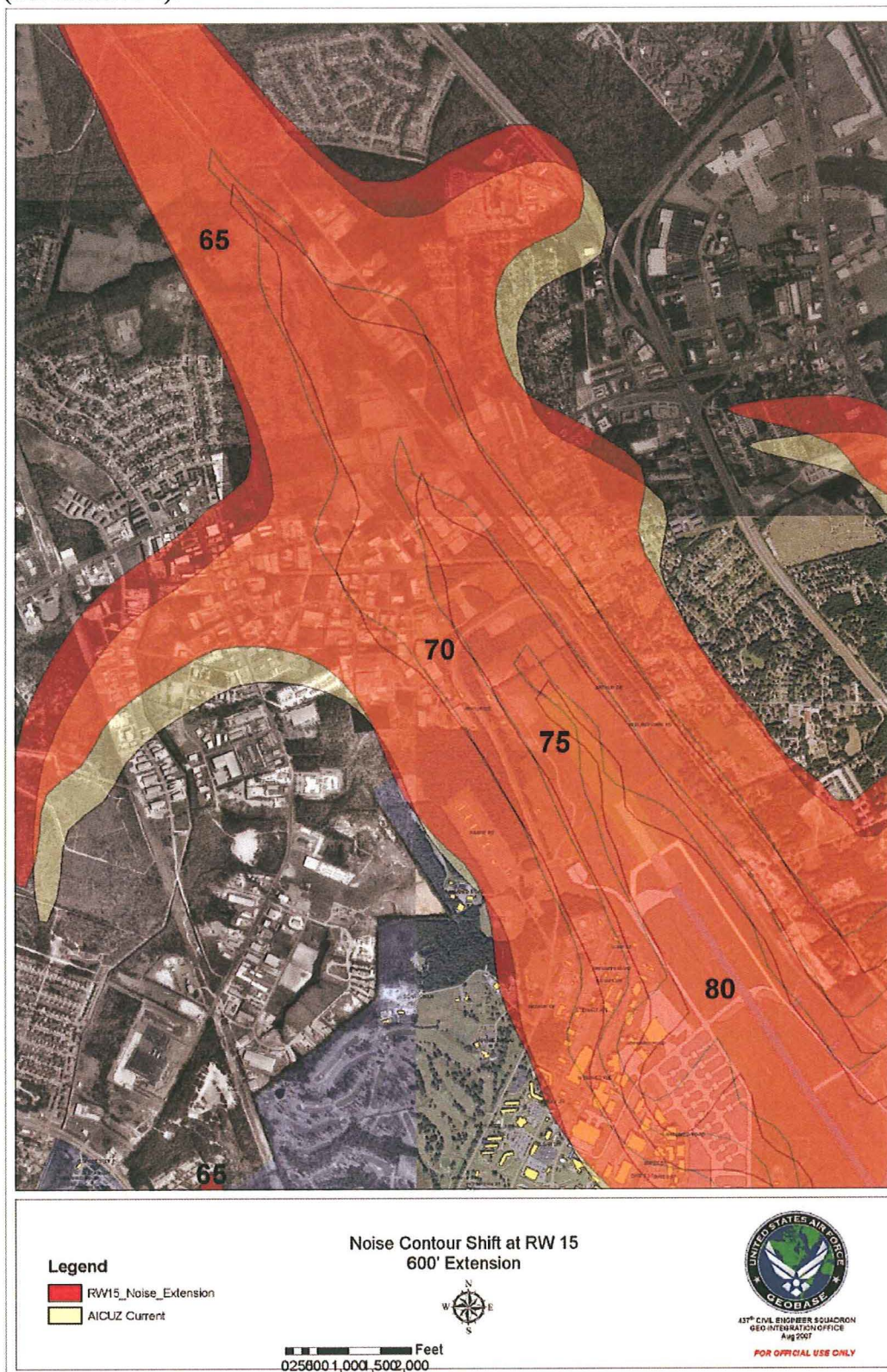


**Figure 14: Shifted Noise Contour Prediction for Runway 15 Extension of 1,500 feet (Alternatives 1, 2, and 3).**





**Figure 15: Shifted Noise Contour Prediction for Runway 15 Extension of 600 feet (Alternative 4).**



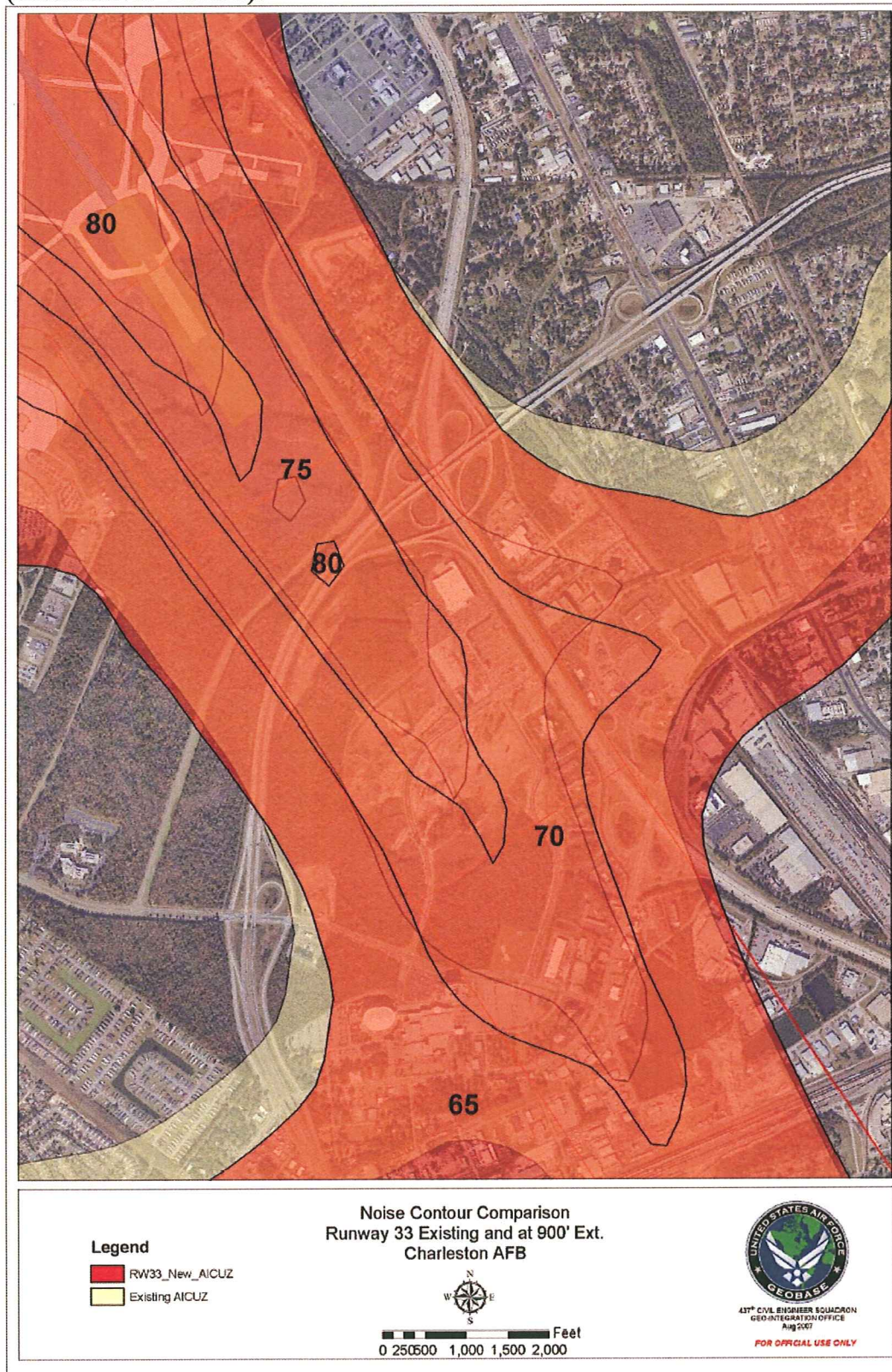


**Figure 16: Shifted Noise Contour Prediction for Runway 15 Extension of 1,300 feet (Alternative 5).**





**Figure 17: Shifted Noise Contour Prediction for Runway 33 Extension of 900 feet (Alternatives 4 and 5).**





**Table 9: Current Effected Land Use and Estimated Effected Land Use of Proposed Alternatives by Acreage (units shown are acres).**

<b>Current Land Use</b>	<b>65-69 dB*</b>	<b>70-74 dB*</b>	<b>&gt; 75 dB*</b>
<b>Residential</b>	1,218	189	0
<b>Commercial</b>	990	246	88
<b>Industrial</b>	415	227	44
<b>Public/Quasi-Public</b>	217	19	<15
<b>Recreational/Open</b>	117	<19	0
<b>Military (CAFB)</b>	393	473	1061
<b>Unknown (N/A)</b>	1,783	719	280
<b>Alternative 1</b>	<b>65-69 dB</b>	<b>70-74 dB</b>	<b>&gt; 75 dB</b>
<b>Residential</b>	1180	189	0
<b>Commercial</b>	960	246	88
<b>Industrial</b>	426	227	44
<b>Public / Quasi-public</b>	205	19	<15
<b>Recreational / Open</b>	103	<19	0
<b>Military (CAFB)</b>	462	473	1061
<b>Unknown</b>	1797	719	280
<b>Alternative 3</b>	<b>65-69 dB</b>	<b>70-74 dB</b>	<b>&gt; 75 dB</b>
<b>Residential</b>	1,218	189	0
<b>Commercial</b>	990	246	88
<b>Industrial</b>	415	227	44
<b>Public / Quasi-public</b>	217	19	<15
<b>Recreational / Open</b>	117	<19	0
<b>Military (CAFB)</b>	393	473	1061
<b>Unknown</b>	1,783	719	280
<b>Alternative 4</b>	<b>65-69 dB</b>	<b>70-74 dB</b>	<b>&gt; 75 dB</b>
<b>Residential</b>	1180	189	0
<b>Commercial</b>	960	246	88
<b>Industrial</b>	426	227	44
<b>Public / Quasi-public</b>	205	19	<15
<b>Recreational / Open</b>	103	<19	0
<b>Military (CAFB)</b>	462	473	1061
<b>Unknown</b>	1797	719	280
<b>Alternative 5</b>	<b>65-69 dB</b>	<b>70-74 dB</b>	<b>&gt; 75 dB</b>
<b>Residential</b>	1180	189	0
<b>Commercial</b>	960	246	88
<b>Industrial</b>	426	227	44
<b>Public / Quasi-public</b>	205	19	<15
<b>Recreational / Open</b>	103	<19	0
<b>Military (CAFB)</b>	462	473	1061
<b>Unknown</b>	1797	719	280

### **3.11 Socioeconomic Impacts**

Socioeconomics is defined as the activities and resources involved with the everyday human environment, particularly involved with population centers, their demographics and economic activities therein. Economic activity within a population typically includes employment and average income statistics and industrial or commercial growth. The perceived success of various initiatives, such as pro-growth or anti-growth sentiments and policies, as well as the impact of specific projects on a local population are dictated by changes in these fundamental socioeconomic indicators. Any public or private project undertaken can be deemed to have socioeconomic impacts, both positive and negative.

There are no Federal regulations dictating that decisions regarding publicly reviewed projects be based on socioeconomic considerations. However there is one legal consideration in an executive order (EO) that pertains to socioeconomic and environmental justice issues. On February 11, 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* issued by President Clinton. This rule requires that Federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin.

This EO was adopted to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no groups of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, tribal, and local programs and policies. EO 12898 is included in the socioeconomic section of this EA because it relates to various socioeconomic groups and the health and environmental effects that could be imposed on them. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of a proposed action. Such information aids in evaluating whether a proposed action would render vulnerable any of the groups targeted for protection in the EO.

The CIAP has facilitated substantial positive socioeconomic impacts on the surrounding community. The presence of the CIAP and CAFB has created and fostered a cooperative relationship between the City of North Charleston and facilities. Members of the local governments serve on the boards of the CCAA and are often in contact to receive notice of projects and give input on the desires of their constituencies. Past activities of commercial development within the city around International Boulevard, the North Charleston Convention Center, and development of many large travel and transportation related businesses near the CIAP are indicative of the positive economic impact of the CIAP on the city. Regarding travel and tourism, Charleston is one of the most popular destinations in the Southeastern U.S. and hosts many arts and cultural festivals. The recent addition of AirTran airways to the list of air travel providers at the CIAP is evidence that demand for air travel services is increasing and becoming more competitive in the Charleston area.

CAFB was originally established as a training and homeland defense airfield during World War II. Through the Cold War, the Air Force and Navy both maintained active installations in North Charleston. In the early 1990s during the proceedings of the Base Realignment and Closure (BRAC), the Charleston Naval Base was slated for closure. During this time, the general consensus was that the local economy would be left in a shambles. However, due in no small part to the consistent presence of CAFB and its personnel, the new bed-down of the 437<sup>th</sup> AW C-17 aircraft and effective re-invention of the greater Charleston area as a tourism destination, the local economy flourished.

Currently, the location of a new aircraft manufacturing facility in North Charleston at the CIAP is adding a new positive economic component. The VGA facility has initiated manufacturing operations with the hiring of approximately 700 full time employees with an average annual income greater than that of the mean annual income in the Charleston metropolitan area. The selection of the CIAP for the VGA facility is a testament to the widespread community support of an increase in business opportunities, particularly in the field of aeronautics. The availability of the additional expansion areas on the VGA facility will offer future opportunities for other aeronautical manufacturers to begin operations once a need is presented.

### **3.12 Threatened and Endangered Species**

Under the Endangered Species Act (ESA) (16 U.S.C. § 1536), an "endangered species" is defined as any species in danger of extinction throughout all or a significant portion of its range. A "threatened species" is defined as any species likely to become an endangered species in the foreseeable future. Species under these designations are commonly known as Threatened and Endangered (T&E) species and are accorded specific legal protection, including mandatory habitat protection in areas where they are known to occur.

The listed T&E species include both vascular plants and animals. States may also list species under other legal designations, which do not afford blanket legal protection but can identify species as rare or of special concern. Recent studies of the project area on the CCAA and CAFB properties have not documented the presence of any Federally listed T&E species. The following Tables 10 and 11 summarize the terrestrial and freshwater listed species for both fauna and flora, respectively, which have been documented as occurring in Charleston County. These species would be deemed to have the highest likelihood of occurring on or near the project area.

**Table 10: Threatened and Endangered Animal Species recorded in Charleston County, South Carolina (terrestrial and freshwater species only).**

ANIMAL SPECIES	HABITAT
Wood Stork ( <i>Mycteria americana</i> )	Feed in fresh and brackish wetlands and nest in cypress or other wooded swamps
Bachman's Warbler ( <i>Vermivora bachmanii</i> )	Probably extinct
Red-cockaded Woodpecker ( <i>Picoides borealis</i> )	Mature pine and hardwood stands > 30 years of age
Flatwoods Salamander ( <i>Ambystoma cingulatum</i> )	Open mesic pine/wiregrass flatwoods
Shortnose Sturgeon ( <i>Acipenser brevirostrum</i> )	Atlantic seaboard rivers
Gopher Frog ( <i>Rana capito</i> )	Floodplains; wet meadows; pastures; ponds
Least Tern ( <i>Sterna antillarum</i> )	Sandy beaches; sandbars

**Table 11: Threatened and Endangered Plant Species Recorded in Charleston County (terrestrial and freshwater species only).**

PLANT SPECIES	HABITAT
Canby's Dropwort ( <i>Oxypolis canbyii</i> )	Open cypress ponds
American Chaffseed ( <i>Schwalbea americana</i> )	Open fire managed xeric pine forest
Pondberry ( <i>Lindera melissifolia</i> )	Shallow depression ponds of sandhills

The JUAf has been included in three wildlife and T&E studies since 1993. In February 2004, the U.S. Fish and Wildlife Service (USFWS) issued a concurrence letter indicating no T&E species were identified on the property. The USFWS was informed of this proposed undertaking during the scoping process in January 2008 to solicit feedback and information on the resources under their purview. No new information or feedback relating to T&E species was received from the USFWS. In addition, no further study or assessment or study for T&E species was recommended following the scoping process.

### 3.13 Traffic and Transportation

During the EIAP process, the assessment of the effects of a proposed Federal action on the community impacts relating to traffic and transportation is required. A community depends on a reliable system of roadways, bridges, and public transportation for accomplishing daily tasks of commuting, commerce and recreation. Actions which can be perceived to disrupt or delay effective transportation in a community are generally those that receive more scrutiny from the public, and will face heavier resistance.

The North Charleston area surrounding the JUAf has a large network of roads including two interstate highways, two US Highways, and several large high capacity thoroughfares to handle traffic. During the typical commuting hours, these roads do get congested with slower moving traffic, particularly during inclement weather or when traffic accidents occur. In general, however, these roads are typically open for free flowing traffic, and are generally in good repair. Lane closures and shutdowns of entire roads are rare and usually associated with genuine emergencies.

The CCAA and CAFB maintain a system of roads falling under the jurisdiction of the CCAA police on CCAA property and base police on CAFB property. CCAA traffic is regulated at and near the airport terminal and on other roads nearby, particularly International Boulevard and Michaux Parkway. These roads feed directly to Dorchester Road (SC-642), (a four lane state highway), Interstate 526 (a limited access highway), and the Aviation Avenue perimeter road. Traffic entering and leaving CAFB property is regulated at gates located on Dorchester Road and the Airport Perimeter Road at the north end of the JUAF; both of these roads have close access to Interstate 26. The JUAF has at least three regularly used gates for access by construction vehicles. Several additional access points exist and may be available for use to allow entrance for construction traffic, thereby further dispersing construction related traffic.

Any traffic in aircraft movement areas is controlled by the airfield manager, and the aircraft traffic is controlled by the FAA control tower. No modification of surface (non-aircraft) related traffic is planned or anticipated, as all permanent structural changes would occur on the airfield.

### **3.14 Water Resources**

Water resources include all surface and ground water transport within a defined watershed. This could be restricted to a defined project area, a hydrologic watershed unit or an entire regulatory district, depending on the purpose of the definition. Physical components include surface waters, ground water, aquifers, wetlands, and manmade features that convey, disperse, drain or distribute water. Within the context of this action, water resources will include wetlands, tributaries, ditches, surface water runoff and controls. Within a regulatory context, water resources are specifically controlled to prevent over-utilization, pollution and degradation of these resources.

The predominant type of water resources to be addressed in this proposed action will be surface waters, specifically wetlands and tributaries (ditches), which are ubiquitous in the project area. The SCDHEC Office of Ocean and Coastal Resources Management (OCRM) manages the permitting program to oversee the design of stormwater treatment and retention facilities. The Storm Water Pollution Prevention Plan (SWPPP) program administered by OCRM, is actively used to improve water quality by certifying that all stormwater runoff is controlled or treated and discharged with no adverse effect to the environment in the South Carolina coastal plain. This program includes issuance of permits for site development and construction in accordance with the National Pollutant Discharge Elimination System (NPDES).

The regulatory statutes involved in the issuance of SWPPP construction permits in the South Carolina Coastal Zone (SCCZ) are known commonly as “land disturbance or storm-water discharge permits”. This program requires that applicants demonstrate that a project’s temporary and permanent site configuration will maintain flow, water quality and discharge of run-off without adverse physical or chemical effects to upstream or downstream surface waters. The goal of the program is to insure that a project will not contribute to any further degradation of water quality, and that storm flows are mitigated to prevent flooding. Use of open ditches, stormwater retention ponds, swales, and stormwater dissipaters are all common structures civil engineers use to design sites so that construction and SWPPP permits may be approved. All approved SWPPPs include an evaluation of direct impacts to surface waters, including wetlands and other waters.



### **3.15 Wetlands**

The U.S. Army Corps of Engineers (USACE) defines wetlands as "those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR Part 328). Wetlands are an important natural system and habitat because of the diverse biologic and hydrologic functions they perform. Wetlands provide for water quality improvement, groundwater recharge and discharge, pollution absorption and attenuation, nutrient cycling, wildlife habitats, and erosion protection. Wetlands are protected as a subset of the "Waters of the United States" (WoUS) under Section 404 of the Clean Water Act (CWA).

In 2001 and again in 2006, the U.S. Supreme Court of the U.S. attempted to clarify the jurisdiction of the USACE as it regulates wetlands. A wetland is a WoUS provided there is a "significant nexus" with a "Traditionally Navigable Water" (TNW), which is regulated by the USACE under Section 10 of the Rivers and Harbors Act of 1899. The two U.S. Supreme Court cases (*SWANCC v. USACE* [2001] and *USACE v. Rapanos* [2006]) altered the regulatory landscape significantly. *SWANCC* resulted in the effective exclusion of all isolated wetlands from federal jurisdiction. However, in *Rapanos* these isolated wetlands were brought back into inclusion into Federal jurisdiction through many types of significant nexus (connections) to TNWs such as drainage ditches, and swales which may be effectively acting as relatively permanent waters (tributaries) and their adjacent wetlands draining to Section 10 waters.

The USACE is responsible for making jurisdictional determinations and regulating wetlands under Section 404 of the CWA. Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill materials into the WoUS, including wetlands. In South Carolina, the Charleston District of the USACE presides over the administration of permits involving WoUS. Section 401 of the CWA gives states the authority to regulate through programs that certify water quality on any proposed activity that could result in a discharge to water bodies, including wetlands. The SCDHEC Bureau of Water (BOW) is the principal state agency to issue or certify a project for water quality certification under Section 401.

Typically, wetlands are the most common type of surface water to be impacted by construction projects, because by their nature they occur on land, which is where most construction is carried out. As areas become more urbanized, and less land is available for use by public and private sectors, the land that is left usually is lower in the landscape and thus contains more wetlands. When the regulatory agencies permit the alteration or destruction of wetlands, the project's owners must comply with all permit conditions including mitigation. The minimal permits to execute the proposed actions affecting jurisdictional wetlands would include the following:

- State (OCRM) Land Disturbance and Stormwater Permit;
- State (OCRM) Coastal Zone Consistency Determination;
- USACE and SCDHEC joint Section 404/401 permit for the impacts to jurisdictional wetlands (as verified in correspondence received from the USACE February 2008);

Table 12 summarizes the ownership of the total estimated 175.09 acres of wetlands areas that would be impacted by the proposed undertaking.

**Table 12: Total wetlands located in project area by property (in acres).**

<b>Charleston County Aviation Authority</b>	<b>Charleston Air Force Base</b>
Wetlands in project area – 31.74 Acres	Wetlands in project area – 143.35 Acres

### **3.16 Wild and Scenic Rivers**

The Federal government established the Wild and Scenic Rivers Act in 1968 for the protection of these designated areas from development, and manipulation. Federal actions should be analyzed for their effects on these rivers. The act states: “It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dams and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.”

There are no wild and scenic rivers located on or immediately adjacent to the project area. The only designated Wild and Scenic River in South Carolina is the Chattooga River, which is located in the Blue Ridge Mountains in Piedmont Region of South Carolina along the Georgia border (approximately 200 miles from the project location).

### **3.17 Indirect and Cumulative Impacts**

The Council on Environmental Quality (CEQ) defines indirect and cumulative effects as “the impact on the environment that results from the incremental impact of the action when added to past, present and reasonably foreseeable future actions regardless of what agency or person undertakes such actions”. Cumulative or secondary impacts can occur in a different location or during a different timeframe from the subject action; however, they would not be necessary or possible without the proposed action.

The current increase of commercial development of the Montague Avenue, Aviation Avenue and International Boulevard in North Charleston represent the most significant changes to the areas surrounding the CIAP. The area has recently added many new shopping outlets, office complexes and large hotels. One large center, including the Tanger Outlet Mall, Sam’s Club, and Wal-Mart, is located within two miles of the 33 end of Runway 15/33.

Immediately adjacent to the JUAF is the new aircraft fuselage assembly plant for VGA. It was recently completed and is situated in a location that allows for future expansion of this facility and for future aeronautic industry development. This specific project involved a 387-acre site leased from the CCAA for the construction of the assembly plant and attendant facilities. A total of 57.26 acres of jurisdictional wetlands or Waters of the United States were located on the site; of these 51.53 acres were permitted by the USACE, SCDHEC and OCRM to be filled. The

VGA facility wetland impacts were found not to be a significant impact to water quality or to the natural environment, when compensatory mitigation measures were considered which offset the watershed impacts of the project.

## 4.0 ENVIRONMENTAL CONSEQUENCES

This section outlines the specific environmental factors and the effects of the proposed action on these factors. The factors are addressed with a conclusion of whether the alternative will have an impact on each factor or not. The effects of the No-Action Alternative are also discussed. A summary table of each alternative and its effectiveness in meeting the needs of the project is presented in Table 13. The focus of detailed discussion is on impacts considered potentially significant.

The general format followed throughout this section is to state the findings of the environmental consequences of the proposed action and alternatives, with a brief discussion of the supporting reasons for the findings. These findings will be discussed in the context of information contained in Section 3.0. Following this discussion, each alternative and its effect will be stated for clarity.

The categories of the findings include the following:

- *No Impact* - This means that the stated alternative will have no effect as defined by the regulatory processes associated with the stated environmental factor;
- *No significant Impact* – This means that the stated alternative will have an effect on the stated environmental factor; however through specifically stated mitigating circumstances or actions to be taken, the effects will be minimized and thus rendered “insignificant”;
- *Significant Impact* – This means that the stated alternative will have an effect on the stated environmental factor, and that there is no apparent means of mitigating the impact to satisfactorily dispose of its significance.

Due to the stated goals of the project in the purpose and need section, it is anticipated that the proposed action will ultimately have a wide range of positive impacts to economic conditions, various aspects of airfield safety and the increased versatility of the airfield. Therefore, this section will only address impacts to the environment that will either be neutral or negative in nature.

Table 13 provides a summary of the overall suitability of each project alternative, and whether it meets the needs of the CCAA. In addition the proposed action and alternatives are re-stated below for the convenience of the reader.

**Table 13: Summary of Alternatives, Suitability for Meeting Project Goals**

<b>Project Alternate</b>	<b>Resulting Runway Configuration</b>	<b>Major Advantage</b>	<b>Major Disadvantage</b>
Alternate 1	Runway 03/21 = 9,000 ft Runway 15/33 = 10,500 ft	<ul style="list-style-type: none"> <li>Increases both runways to lengths needed.</li> </ul>	<ul style="list-style-type: none"> <li>CAFB has existing structures in conflict within the resulting CZ of the 1,500 foot extension of 15 end of Runway 15/33.</li> </ul>
Alternate 2	Runway 03/21 = 9,000 ft Runway 15/33 = 10,500 ft	<ul style="list-style-type: none"> <li>Eliminates environmental impacts (wetlands) created by extensions of clear zones and APZs.</li> </ul>	<ul style="list-style-type: none"> <li>Runways are only effectively extended in one direction for take-offs and landings (Displaced Thresholds). Not a preferred configuration.</li> </ul>
Alternate 3	Runway 03/21 = 7,004 ft Runway 15/33 = 10,500 ft	<ul style="list-style-type: none"> <li>Increases the primary runway to length needed.</li> </ul>	<ul style="list-style-type: none"> <li>Does not replace the 9,000-foot runway during repair of Runway 15/33.</li> </ul>
Alternate 4 (Preferred)	Runway 03/21 = 9,000 ft Runway 15/33 = 10,500 ft	<ul style="list-style-type: none"> <li>Increases both runways to lengths needed</li> </ul>	<ul style="list-style-type: none"> <li>Higher degree of wetland impact than Alternate 1.</li> </ul>
Alternate 5	Runway 03/21 = 9,000 ft Runway 15/33 = 11,200 ft	<ul style="list-style-type: none"> <li>Increases both runways to lengths needed.</li> </ul>	<ul style="list-style-type: none"> <li>CAFB has existing structures in conflict within the resulting CZ of the 1,300 foot extension of 15 end of Runway 15/33.</li> </ul>
Alternate 6	Runway 03/21 = 7,004 ft Runway 15/33 = 9,001 ft	<ul style="list-style-type: none"> <li>No impact – no cost.</li> </ul>	<ul style="list-style-type: none"> <li>Does not improve airfield versatility, causes certain loss of business at CIAP.</li> </ul>

**Alternative 1: (Resulting in a Primary Runway of 10,500 feet and Secondary Runway of 9,000 feet)**

- Extension of Runway 03/21 to 9,000 feet by lengthening the 03 end by 2,000 feet with 1,000 feet of paved overrun (Figure 4).
- Extension of Runway 15/33 to 10,500 feet by lengthening the 15 end by 1,500 feet with 1,000 feet of paved overrun (Figure 5).

**Alternative 2: (Permanently Displaced Thresholds)**

- Extension of Runway 03/21 to 9,000 feet by lengthening the 03 end by 2,000 feet of overrun and a displaced threshold (Figure 6).
- Extension of Runway 15/33 to 10,500 feet by lengthening the 15 end by 1,500 feet of overrun and a displaced threshold (Figure 7).

**Alternative 3: (Extension of Runway 15/33 only)**

- Extension of Runway 15/33 to 10,500 feet by lengthening the 15 end by 1,500 feet with 1,000 feet of paved overrun (Figure 5).

**Alternative 4 (Preferred): (Resulting in a Primary Runway of 10,500 feet and Secondary Runway of 9,000 feet)**

- Extension of Runway 03/21 to 9,000 feet by lengthening the 03 end by 2,000 feet (Figure 4).
- Extension of Runway 15/33 to 10,500 feet by lengthening the 15 end by 600 feet and the 33 end by 900 feet (Figures 8 & 9).



**Alternative 5: (Resulting in a Primary Runway of 11,200 feet and Secondary Runway of 9,000 feet)**

- Extension of Runway 03/21 to 9,000 feet by lengthening the 03 end by 2,000 feet (Figure 4).
- Extension of Runway 15/33 to 11,200 feet by lengthening the 15 end by 1,300 feet and the 33 end by 900 feet (Figures 9 & 10).

**Alternative 6: (No Action Alternative)**

- The “Do Nothing Alternative” – Is the alternative where the airfield is left in its current configuration and repairs currently planned and permitted are carried out.

#### **4.1 Aesthetics**

The environmental consequences for this undertaking are considered to have *no impact* on local aesthetic features. The expansion of runway CZs, airfield lighting and other facilities will not create visual impacts upon any adjacent properties due to the configuration of the new airfield facilities. The appearance of the existing facilities will simply be displaced further by the number of feet specified in each alternative.

Alternative 1: This alternative will have *no impact* on aesthetics due to the plans and scope of the undertaking. No aesthetic features exist within the view shed of the JUAF.

Alternative 2: This alternative will have *no impact* on aesthetics due to the plans and scope of the undertaking. No aesthetic features exist within the view shed of the JUAF

Alternative 3: This alternative will have *no impact* on aesthetics due to the plans and scope of the undertaking. No aesthetic features exist within the view shed of the JUAF

Alternative 4 (Preferred): This alternative will have *no impact* on aesthetics due to the plans and scope of the undertaking. No aesthetic features exist within the view shed of the JUAF

Alternative 5: This alternative will have a *no impact* on aesthetics due to the plans and scope of the undertaking. No aesthetic features exist within the view shed of the JUAF

Alternative 6: This alternative would result in *no impact* to aesthetics, as no construction would be conducted.

#### **4.2 Air Quality**

The environmental consequences for this undertaking are considered to have *no impact* on local and regional air quality. A determination of no impacts in alternatives 1 through 5 was considered based upon the fact that this undertaking will not cause increases in regulated air pollutant emissions compared to existing ambient air quality during or after the proposed undertaking. The project area and community are classified as an attainment area in accordance with the NAAQS, and the undertaking will not impact the attainment status during or following the undertaking. An impact would be applicable if the undertaking 1) caused or contributed to the violation of state or federal regulations, 2) exposed sensitive

receptors to significantly increase levels of regulated air pollutants, 3) caused a 10 percent or more increase in an affected air quality control region (AQCR) emission inventory, or 4) exceeded any Evaluation Criteria established by the SIP.

Federal actions must comply with the General Conformity Rule. The General Conformity Rule does not apply to this location or region as 1) the area is classified as an attainment area in accordance with NAAQS, and 2) the action or undertaking does not increase or contribute to a violation of the NAAQS. The project area, community and Charleston County are currently and are expected to remain an attainment area during and after the undertaking.

Major stationary sources of air pollution are required to be permitted under the CAA Amendments referred to as Title V. A major source is defined as any single permanent source which has the potential to emit 100 tons of criteria pollutants, 10 tons of a single hazardous air pollutant, or 25 tons of any combination of hazardous air pollutants. Non-attainment areas have stricter requirements, however this subject site and AQCR is within an attainment area. This undertaking will not have any permanent or major stationary sources of regulated air pollutants; therefore Title V is not applicable.

PSD Prevention of Significant Deteriorations is a USEPA requirement applied to new major sources or major modifications to existing sources. A major source is defined as over 100 tons of a single pollutant annually. The standard is intended to maintain air quality in regards to "baseline" date. The state dictates baseline areas for which specific pollutants must have an incremental analysis to ensure that even if the pollutant concentrations are below the NAAQS permissible limits there are no significant increases in these specific pollutant concentrations resulting from a single source. Each area of the state is classified as Class I, Class II or Class III depending on the land uses sensitivity to pollutants. Charleston is a Class II area with a minor source baseline date for PM<sub>10</sub>, SO<sub>2</sub>, and NO<sub>x</sub>.

The undertaking as proposed will not have any major stationary sources, therefore PSD requirements will not apply.

A temporary concrete batch plant may be located on the site to produce concrete if deemed more efficient to extend the runways. An air permit issued by the SCDHEC – BAQ will be required prior to delivery or use of this temporary source provided a batch plant is used during construction. Specifically, a Minor Source permit per Standard No. 2 of SC regulation 61-62.5 would be required. Minor Source permits apply to sources emitting less than 100 tons of a single pollutant annually. If a concrete batch plant is temporarily stationed on the project site during construction, the required SCDHEC minor source permit will also include demonstration that no incremental increase will occur in support of compliance with PSD.

Other Best Management Practices (BMPs) used during construction will include the use of water truck sprayers to reduce dust, and proper equipment maintenance and operation would minimize potential effects to air quality. No adverse effects to air quality are expected during construction under the proposed action. As proposed, the project would not represent an air quality impact to the environment.

Alternative 1: This alternative will have *no impact* on air quality due to the plans and scope of the undertaking.

Alternative 2: This alternative will have *no impact* on air quality due to the plans and scope of the undertaking.

Alternative 3: This alternative will have *no impact* on air quality due to the plans and scope of the undertaking.

Alternative 4 (Preferred): This alternative will have *no impact* on air quality due to the plans and scope of the undertaking.

Alternative 5: This alternative will have a *no impact* on air quality due to the plans and scope of the undertaking.

Alternative 6: This alternative would result in *no impact* to air quality, as no construction would be conducted.

#### **4.3 Compatible Land Use**

The environmental consequences for this undertaking are considered to have *no significant impact* on local compatible land use features.

Alternative 1: This alternative will have *no significant impact* on compatible land use due to the plans and scope of the undertaking. This alternative would add approximately eight additional private properties, including two industrial, three single family residential and two trailer parks with approximately 30-35 lots within the new CZ to the 89 properties already encumbered by deed restrictions or easements regulating the height of structures within the CZs. The additional properties will be treated consistently with existing properties located in the CZ. This may consist of deed restrictions, airspace easements, or potential property purchase.

Alternative 2: This alternative will have *no significant impact* on compatible land use due to the plans and scope of the undertaking. This alternative would not add any additional clear zones due to the use of displaced thresholds. CZ and APZ positions would not change.

Alternative 3: This alternative will have *no significant impact* on compatible land use due to the plans and scope of the undertaking. This alternative would add approximately eight additional private properties including two industrial, three single family residential and two trailer parks with approximately 30-35 lots to the 89 already encumbered by deed restrictions or easements regulating the height of structures within the CZs. The additional properties will be treated consistently with existing properties located in the CZ. This may consist of deed restrictions, airspace easements, or potential property purchase.

Alternative 4 (Preferred): This alternative will have *no significant impact* on compatible land use due to the plans and scope of the undertaking. This alternative would add approximately 37 additional private single family residential properties to the 89 already encumbered by deed restrictions or easements regulating the height of structures within the CZs. The additional

properties will be treated consistently with existing properties located in the CZ. This may consist of deed restrictions, airspace easements, or potential property purchase.

Alternative 5: This alternative will have a *no significant impact* on compatible land use due to the plans and scope of the undertaking. This alternative would add approximately 40 additional private single family residential properties to the 89 already encumbered by deed restrictions or easements regulating the height of structures within the CZs. The additional properties will be treated consistently with existing properties located in the CZ. This may consist of deed restrictions, airspace easements, or potential property purchase.

Charleston AFB prepares periodic Air Installation Compatible Use Zone (AICUZ) studies and releases them local governments and citizens for their use in planning, zoning and development activities. Their most recent AICUZ study was accomplished and publicly released in 2004. This AICUZ study provides local communities and the citizens with the locations of CZs and APZs that result from military and commercial aircraft operations. It also recommends compatible land uses within the CZs and APZs in the vicinity of Charleston AFB. Local communities are encouraged to use the recommended land uses within the CZs and APZs in developing their planning and zoning policies. Charleston AFB will evaluate the aircraft operations after the implementation of the proposed action in the next AICUZ study. If a new AICUZ will be required due to the CZ and APZ changes, the Charleston County Aviation Authority will need to provide funding for Charleston AFB to update the AICUZ study.

#### **4.4 Ecologically Sensitive Areas**

The environmental consequences for this undertaking are considered to have *no impact* on local and regional ecologically sensitive areas. No critical (salt marsh) or other ecologically sensitive areas are located on or adjacent to the project area. Discharged storm water runoff from the site, which is located well inland of any estuarine habitats, will be controlled using Best Management Practices (BMPs) approved by the regulatory agencies under the SWPPP permits as methods of mitigating potential adverse impacts. The required management of stormwater originating from the temporary disturbance during construction and the impervious surfaces created upon completion of the project will protect downstream areas from impacts in the alternatives.

Alternative 1: This alternative will have *no impact* on ecologically sensitive areas due to the plans and scope of the undertaking.

Alternative 2: This alternative will have *no impact* on ecologically sensitive areas due to the plans and scope of the undertaking.

Alternative 3: This alternative will have *no impact* on ecologically sensitive areas due to the plans and scope of the undertaking.

Alternative 4 (Preferred): This alternative will have *no impact* on ecologically sensitive areas due to the plans and scope of the undertaking.

Alternative 5: This alternative will have a *no impact* on ecologically sensitive areas due to the plans and scope of the undertaking.

Alternative 6: This alternative would result in *no impact* to ecologically sensitive areas, as no construction would be conducted.

#### **4.5 Health and Safety**

The environmental consequences for this undertaking are considered to have *no significant impact* on local and regional health and safety. The proposed action alternatives 1, 3, 4 and 5 will not increase risks associated with the safety of onsite personnel such as contractors and airfield staff. The local community will have a slightly increased risk in the areas of the shifted CZs and APZs in the unlikely event of an aircraft incident in the proposed action alternatives 1, 3, 4 and 5.

The increased risk would be restricted to the properties located in the new CZs and APZs. This includes between eight and 40 private properties, including industrial, commercial and residential properties. Properties located in the new CZs are generally already located within the current APZs and near flight paths, so are already under an elevated risk in the event of an airplane incident.

Alternative 1: This alternative will have *no significant impact* on health and safety due to the plans and scope of the undertaking.

Alternative 2: This alternative will have *no impact* on health and safety due to the plans and scope of the undertaking. This alternative would not move the existing CZs or APZs.

Alternative 3: This alternative will have *no significant impact* on health and safety due to the plans and scope of the undertaking.

Alternative 4 (Preferred): This alternative will have *no significant impact* on health and safety due to the plans and scope of the undertaking.

Alternative 5: This alternative will have a *no significant impact* on health and safety due to the plans and scope of the undertaking.

Alternative 6: This alternative would result in *no impact* to health and safety, as no construction would be conducted.

#### **4.6 Farmlands**

No NRCS designated unique and prime farmlands are present on or near the project area. The environmental consequences for this undertaking are considered to have *no impact* on farmlands.

Alternative 1: This alternative will have *no impact* on farmlands due to the plans and scope of the undertaking.



Alternative 2: This alternative will have *no impact* on farmlands due to the plans and scope of the undertaking.

Alternative 3: This alternative will have *no impact* on farmlands due to the plans and scope of the undertaking.

Alternative 4 (Preferred): This alternative will have *no impact* on farmlands due to the plans and scope of the undertaking.

Alternative 5: This alternative will have a *no impact* on farmlands due to the plans and scope of the undertaking.

Alternative 6: This alternative would result in *no impact* to farmlands, as no construction would be conducted.

#### **4.7 Floodplains**

The JUAF is located entirely within flood zone “X”, which is designated as a less than 1% risk of flooding on an annual basis. The regulations regarding floodplains do not mandate that any additional insurance be required for facilities in this area. The project will be designed with adequate drainage of runways and graded areas into the existing network of ditches already maintained by the CCAA and CAFB. The airfield and its surroundings is not located in any major drainage-ways or other high risk areas for flooding. The environmental consequences for this undertaking are considered to have *no impact* on local floodplains.

Alternative 1: This alternative will have *no impact* on floodplains due to the plans and scope of the undertaking.

Alternative 2: This alternative will have *no impact* on floodplains due to the plans and scope of the undertaking.

Alternative 3: This alternative will have *no impact* on floodplains due to the plans and scope of the undertaking.

Alternative 4 (Preferred): This alternative will have *no impact* on floodplains due to the plans and scope of the undertaking.

Alternative 5: This alternative will have a *no impact* on floodplains due to the plans and scope of the undertaking.

Alternative 6: This alternative would result in *no impact* to floodplains, as no construction would be conducted.

#### **4.8 Hazardous Materials**

The environmental consequences for this undertaking are considered to have *no significant impact* on hazardous materials in the project area.

The proposed extension of the 03 end of Runway 03/21 would require construction activities to be conducted within or near SWMUs 53, 60, and 71 in Zone 1 and the proposed extension of the 33 end of Runway 15/33 would require construction activities to be conducted within or near SWMUs 58 and 70 in Zone 3. Potential adverse impacts could occur during construction if waste material buried in the areas are improperly handled or disposed, or if construction workers are exposed to this waste material without proper safety procedures in place. However, the USAF-ERP requires compliance with the RCRA Part B Permit and the SCDHEC during construction in the SWMUs, which will limit adverse impacts. Requirements of the SCDHEC will likely include the preparation of a Work Plan to establish construction procedures taking into account the buried waste and contaminated media, the preparation of a Health and Safety Plan for workers, and the proper characterization, handling, transport, and disposal procedures for waste materials and contaminated media. Potential positive impacts could occur during and after construction by complying with the RCRA Part B Permit and the SCDHEC. For instance, buried waste materials may be removed from the area to facilitate construction resulting in the proper disposal of the waste in permitted disposal facility. In addition, the removal and proper disposal of waste materials at the SWMUs would remove potential sources of negative impacts to soil and groundwater in the area.

Following construction, the proposed alternatives would not increase hazardous waste stream volumes and would not create new waste streams. As such the potential impacts are not considered significant.

Alternative 1: This alternative would result in *no significant impact* on hazardous materials sites or cause any releases in the vicinity of the JUAF.

Alternative 2: This alternative would result in *no significant impact* on hazardous materials sites or cause any releases in the vicinity of the JUAF.

Alternative 3: This alternative would result in *no significant impact* on hazardous materials sites or cause any releases in the vicinity of the JUAF.

Alternative 4 (Preferred): This alternative would result in *no significant impact* on hazardous materials sites or cause any releases in the vicinity of the JUAF.

Alternative 5: This alternative would result in *no significant impact* on hazardous materials sites or cause any releases in the vicinity of the JUAF.

Alternative 6: This alternative would result in *no impact* on hazardous materials sites or cause any releases in the vicinity of the JUAF because in this alternative, as no construction would be conducted.

#### **4.9 Historic and Cultural Resources**

This undertaking, as proposed, will present *no impact* to historic and cultural resources including archaeological sites and historic architectural resources listed on or eligible for the NRHP.

No archaeological resources will be affected and that there will be no adverse affects to the Ashley River Historic District. The SHPO, in a letter dated February 28, 2008 concurred with these findings and agreed that this project does not require any additional studies before construction. They do require that if unanticipated discovery of archeological materials take place during construction or excavation, their office should be notified in accordance with the cultural resources management plan for CAFB and the provisions of 36 CFR 800.13.

Alternative 1: This alternative would result in *no impact* to historic or cultural resources in the vicinity of the JUAF.

Alternative 2: This alternative would result in *no impact* to historic or cultural resources in the vicinity of the JUAF.

Alternative 3: This alternative would result in *no impact* to historic or cultural resources in the vicinity of the JUAF.

Alternative 4 (Preferred): This alternative would result in *no impact* to historic or cultural resources in the vicinity of the JUAF.

Alternative 5: This alternative would result in *no impact* to historic or cultural resources in the vicinity of the JUAF.

Alternative 6: This alternative would result in *no impact* to historic or cultural resources in the vicinity of the JUAF as no construction would be conducted.

#### **4.10 Noise**

The environmental consequences for this undertaking are considered to have *no significant impact* on local and regional noise levels.

A determination of no significant impact is based on this undertaking not significantly changing the current noise contours originally produced for the 2004 AICUZ. An analysis of the projected noise contours associated with a variety of runway extensions was conducted as part of the 2004 AICUZ to determine changes, if any, in the land use categories and populations affected by six alternatives. There is a modest change in land use affected in association with the 2,000 foot extension of Runway 03. Alternatives 1, 4 and 5 include the 2,000 foot extension of the 03 end of Runway 03/21. The other runway extensions have no discernable differences in the affected land use.

Populations affected by the shift in noise contours will increase between approximately 1.4% and approximately 11.2%. The largest changes in number of people affected occurs in the 65-69 dB contour and ranges between 1.6% and 4.2%, representing approximately 198-530 people within that contour. There is no significant increase in population numbers as it relates to people within the 70-74dB and >75dB noise contours.

CAFB has prepared an AICUZ study and released it to local government and citizens for their use in planning, zoning and development activities. Their most recent AICUZ study was

accomplished and publicly released in 2004. This AICUZ study provides local communities and the citizens with the noise contours that result from military and commercial aircraft operations. It also recommends compatible land uses within the noise contours in the vicinity of CAFB. Local communities are encouraged to use the recommended land uses in developing their planning and zoning policies. CAFB will evaluate the aircraft operation after the implementation of the proposed action to determine if a new AICUZ study will be required. If it is determined a new AICUZ will be required due to the noise contour changes, the CCAA will need to provide funding for CAFB to update the AICUZ study. The implementation of this proposed action will require an evaluation to determine if flying operations have significantly changed resulting in a requirement for a new AICUZ Study.

Alternative 1: This alternative will have *no significant impact* on noise levels due to the plans and scope of the undertaking.

Alternative 2: This alternative will have *no impact* on noise levels because this alternative requires no change to the noise contours.

Alternative 3: This alternative will have *no significant impact* on noise levels due to the plans and scope of the undertaking.

Alternative 4 (Preferred): This alternative will have *no significant impact* on noise levels due to the plans and scope of the undertaking.

Alternative 5: This alternative will have *no significant impact* on noise levels due to the plans and scope of the undertaking.

Alternative 6: This alternative will have *no impact* on noise levels, as no construction would be conducted.

#### **4.11 Socioeconomic Impacts**

The environmental consequences for this undertaking are considered to have *no impact* on local socioeconomics.

Since the project is being proposed for the improvement of airfield versatility to help attract new business by the aeronautics industry, it is intended to have a positive, long term effect to the socioeconomics of the area.

The numbers of employees at the CCAA or military personnel stationed at CAFB and surrounding businesses are not expected to decline due to this project. Families of military and civilian Air Force personnel and surrounding residences will not be displaced by this project. The project will have an immediate temporary beneficial impact on the workload and demand for people working in the engineering and construction fields, as it does involve an extensive amount of grading and pavement installation. It is not anticipated that construction will adversely affect any social or economic factors under the proposed action.

Alternative 1: This alternative will have *no impact* on socioeconomics due to the plans and scope of the undertaking.

Alternative 2: This alternative will have *no impact* on socioeconomics due to the plans and scope of the undertaking.

Alternative 3: This alternative will have *no impact* on socioeconomics due to the plans and scope of the undertaking.

Alternative 4 (Preferred): This alternative will have *no impact* on socioeconomics due to the plans and scope of the undertaking.

Alternative 5: This alternative will have *no impact* on socioeconomics due to the plans and scope of the undertaking.

Alternative 6: This alternative would result in *no impact* to current socioeconomics, as the project would not move forward. However, the shortfall in the available runway may result in delays in shipping in the components of the 787 Dreamliner, and could result in a reduction in the regional economic impact from VGA if transport issues are not addressed.

#### **4.12 Threatened and Endangered Species**

The environmental consequences for this undertaking are considered to have *no impact* on threatened or endangered species.

The scoping process solicited comments from the USFWS and SCDNR regarding the project with respect to their resources of concern. No comments were received regarding the presence of or any anticipated adverse effects on protected species. Due to the recent clear zone timbering operations and the history of mining disturbance on the properties, the area on interest does not generally present suitable habitats for any of the Federally listed species in Charleston County.

Past studies by CAFB on the JUAF and surrounding land support this conclusion. Three wildlife studies with an emphasis on Federal T&E species have been conducted since 1993. These studies have not documented the presence of any T&E species. The USFWS has concurred with these recent findings.

Alternative 1: This alternative will have *no impact* on threatened or endangered species due to the plans and scope of the undertaking.

Alternative 2: This alternative will have *no impact* on threatened or endangered species due to the plans and scope of the undertaking.

Alternative 3: This alternative will have *no impact* on threatened or endangered species due to the plans and scope of the undertaking.

Alternative 4 (Preferred): This alternative will have *no impact* on threatened or endangered species due to the plans and scope of the undertaking.



Alternative 5: This alternative will have a *no impact* on threatened or endangered species due to the plans and scope of the undertaking.

Alternative 6: This alternative would result in *no impact* to threatened or endangered species, as no construction would be conducted.

#### **4.13 Traffic and Transportation**

The environmental consequences for this undertaking are considered to have *no significant impact* on traffic and transportation.

This project will take place on the JUAF, which has a consistent flow of day and night air traffic. The closure of various runways and taxiways are already planned throughout the course of the scheduled runway repair projects currently scheduled and permitted by CAFB. This proposed action would employ similar controls as the repair projects with the closures scheduled and coordinated with the FAA control tower and airfield manager well in advance. Volume of ground transportation particularly for trucks and construction equipment will increase on and around the CCAA and CAFB properties as construction material, debris and other materials are transported on and off of the airfield. No widespread lane closures or special automobile traffic patterns are anticipated to be necessary outside of the JUAF area on public roads. The project area is accessible by multiple points through entrances on the CCAA and CAFB properties and availability of major arterial roads and interstate highways nearby provide for efficient dispersal of construction traffic.

Any minor air traffic impacts can be mitigated best by the coordinated scheduling of runway closure times. The minor road traffic impacts can be best mitigated by the adjustment of delivery and disposal. Traffic and transportation on the airfield for both ground and air traffic are controlled by the FAA tower. It is likely that the construction traffic will have a minor temporary effect on traffic and transportation under the proposed action. Changes to air traffic patterns and the taxiing of aircraft will be managed by the tower. Construction traffic will be coordinated between airfield management, and it will be the responsibility of the contractor(s) selected to perform construction tasks to minimize disruptions to air and ground traffic.

Alternative 1: This alternative will have *no significant impact* on traffic and transportation due to the plans and scope of the undertaking.

Alternative 2: This alternative will have *no significant impact* on traffic and transportation due to the plans and scope of the undertaking.

Alternative 3: This alternative will have *no significant impact* on traffic and transportation due to the plans and scope of the undertaking.

Alternative 4 (Preferred): This alternative will have *no significant impact* on traffic and transportation due to the plans and scope of the undertaking.

Alternative 5: This alternative will have a *no significant impact* on traffic and transportation due to the plans and scope of the undertaking.

Alternative 6: This alternative would result in *no impact* to traffic and transportation, as no construction would be conducted.

#### **4.14 Water Resources**

The environmental consequences for this undertaking are considered to have *no significant impact* on water resources.

All permits to including SWPPPs will be obtained through the OCRM. The permit will include the evaluation of the site to account for the increases in impervious surfaces. For construction to begin, the project engineers will demonstrate that the site stormwater runoff will be managed during and after construction. Use of BMPs, stormwater controls (retention basins, swales and other structures) will prevent the degradation of water resources.

Alternative 1: This alternative will have *no significant impact* on water resources due to the plans and scope of the undertaking.

Alternative 2: This alternative will have *no significant impact* on water resources due to the plans and scope of the undertaking.

Alternative 3: This alternative will have *no significant impact* on water resources due to the plans and scope of the undertaking.

Alternative 4 (Preferred): This alternative will have *no significant impact* on water resources due to the plans and scope of the undertaking.

Alternative 5: This alternative will have a *no significant impact* on water resources due to the plans and scope of the undertaking.

Alternative 6: This alternative would result in *no impact* to water resources, as no construction would be conducted.

#### **4.15 Wetlands**

The environmental consequences for this undertaking are considered to have *no significant impact* concerning wetlands. The current wetland determinations for both the CCAA and CAFB properties, when superimposed with approximate runway extension alternatives, show there will be areas of wetland disturbance. This disturbance is required for extension of the runways and taxiways, pavement, graded areas, and clear zones. In the clear zones, vegetation will be removed by non-mechanized means to lessen the impact to soil contours. In all other areas of the project, wetland impacts will be classified as “fill”. Table 14 shows the anticipated impacts of each project alternative shown by type and the property on which they are located.

**Table 14: Wetland Impacts Resulting from the Proposed Action and Alternatives** (acreages are anticipated - based on 3,000 by 3,000 foot clear zones).

<b>Project Alternate</b>	<b>Impact to wetlands on CCAA</b>	<b>Impact to wetlands on CAFB</b>	<b>Total Impacts</b>
<b>Alternative 1</b>	30.87 acres (cleared)	74 acres (fill) 12.27 acres (cleared)	117.14 acres
<b>Alternative 2*</b>	None	37.10 acres (fill)	37.10 acres
<b>Alternative 3</b>	None	12.27 acres (cleared)	12.27 acres
<b>Alternative 4 (Preferred)</b>	31.74 acres (cleared)	103 acres (fill) 10.16 acres (cleared)	144.9 acres
<b>Alternative 5</b>	31.74 acres (cleared)	103 acres (fill) 12.27 acres (cleared)	147.01 acres
<b>Alternative 6</b>	No impact	No impact	None

\* uses displaced thresholds

To achieve the preferred alternative CCAA proposes a plan which breaks the wetland mitigation into two phases. This plan achieves numerous objectives by combining need and financial opportunities for the airport authority with existing upgrades planned by Charleston AFB. Phase one of the proposed CCAA plan impacts wetlands off the end of runway 03 and coincides with AF repairs already scheduled on the runway and overrun. Phase two of the CCAA plan impacts wetlands off runway 15/33 and also coincides with future AF projections to repair the runway.

Due to the longer time frame of the second phase (Runway 15/33 extension) of the project, the planning and effort to obtain wetland impact permits will be conducted separately from the Runway 03/21 extension. The mitigation required in the second phase of the project is anticipated to be approximately 450.2 wetland “credits”, based on 29.7 acres of wetland fill and 10.16 acres for clear zones. This mitigation estimate, need for updated environmental documentation, and specific permitting requirements; will be re-addressed at a later date, when project funding and execution become more defined. That re-evaluation of the second phase of the mitigation plan will provide improved planning documents, as well as, more detailed surveys and site planning for an accurate determination of the impacts. Additionally, CCAA will revalidate availability of wetland mitigation bank credits and other potential mitigation properties, with mitigation options selected, based on the opportunities at the time.

The acreage impacted in phase one (extension of Runway 03/21) of the proposed action will create a requirement for an anticipated 1,100 wetland “credits” within the USACE – Charleston District 2002 SOP, and currently enforced SCDHEC and OCRM regulatory guidelines. During a meeting with these agencies on August 7, 2008 the CCAA presented a plan to these regulatory agencies, which satisfies the general requirements set forth in the 2002 SOP and the more recent “Compensatory Mitigation for Losses of Aquatic Resources” (Final Rule), published April 10, 2008.

The CCAA has explored various options to achieve mitigation for this proposal including opportunities within its own properties and with other local municipalities and property owners; including the Charleston County Parks and Recreation Department and City of Charleston Parks

Department, regarding agreements for preserving, buffering and permanently protecting wetlands and adjacent upland buffers on their properties. In addition - two local mitigation banks (Pigeon Pond, LLC and Congaree-Carton, LP), are available to obtain permitted wetland mitigation credits. The proposed mitigation plan outlined in Table 15 below demonstrates the anticipated breakdown for mitigation associated with the proposed action. As demonstrated below, the grand total of the required credits would be met by the proposed mitigation plan.

**Table 15: Wetland Mitigation Proposed for the Impacts Resulting from the Runway 03/21 Extension (Phase one of the Proposed Action – Alternative 4). Required Credits = 1,100.**

<b>Summary of Credits by Location</b>	<b>Preservation</b>	<b>Enhancement by Buffering</b>	<b>Direct Restoration</b>
<b>City of Charleston Dept of Parks</b>	<b>44</b>	<b>9</b>	<b>0</b>
<b>Charleston County Parks and Recreation Department</b>	<b>216</b>	<b>266</b>	<b>0</b>
<b>CCAA – Charleston Executive Airport</b>	<b>290</b>	<b>0</b>	<b>0</b>
<b>Congaree-Carton and Pigeon Pond Mitigation Banks</b>	<b>0</b>	<b>0</b>	<b>275</b>
<b>Totals</b>	<b>550</b>	<b>275</b>	<b>275</b>

The CCAA will continue to pursue specific measures to provide compensatory mitigation for the wetland impacts associated with the project through both phases. These efforts would include: 1) preserving, buffering and deed restricting other CCAA properties; 2) purchase of off-site wetland mitigation credits; 3) providing funds for land purchases which may preserve, or restore additional wetlands including public parklands and private properties in Charleston County and the surrounding watershed and ; 4) Providing in-lieu fees to approved programs (to be negotiated with regulatory agencies). These measures will be implemented in accordance with state and Federal regulations as a condition of the permits issued for a finding of no significant impact.

Lastly, CCAA in conjunction with CAFB will actively work through the wetland permitting process and develop a more detailed plan to be approved by all regulatory agencies to compensate for the impacts if avoidance and minimization are not possible due to the selected alternate. The project permits will be issued by the agencies whom routinely accept compensatory wetland mitigation credits and other compensation from sources such as:

- Wetland Mitigation Banks (including wetlands preservation restoration and enhancement);
- Onsite areas set aside and protected from further possible development by preservation and buffering with uplands;
- Offsite properties where wetlands are restored, enhanced and/or preserved by the applicant;
- Possible in lieu fee programs – which benefit public wetland or natural resources sites.

These measures will be implemented in accordance with state and Federal regulations as a condition of the permits issued for a finding of no significant impact.

Alternative 1: This alternative will have *no significant impact* on wetlands due to the plans and scope of the undertaking and considering the compensatory mitigation proposed.

Alternative 2: This alternative will have *no significant impact* on wetlands due to the plans and scope of the undertaking and considering the compensatory mitigation proposed.

Alternative 3: This alternative will have *no significant impact* on wetlands due to the plans and scope of the undertaking and considering the compensatory mitigation proposed.

Alternative 4 (Preferred): This alternative will have *no significant impact* on wetlands due to the plans and scope of the undertaking and considering the compensatory mitigation proposed.

Alternative 5: This alternative will have a *no significant impact* on wetlands due to the plans and scope of the undertaking and considering the compensatory mitigation proposed.

Alternative 6: This alternative would result in *no impact* to water resources, as no construction would be conducted.

#### **4.16 Wild and Scenic Rivers**

The environmental consequences for this undertaking are considered to have *no impact* on Wild and Scenic Rivers.

Alternative 1: This alternative will have *no impact* on wild and scenic rivers due to the plans and scope of the undertaking.

Alternative 2: This alternative will have *no impact* on wild and scenic rivers due to the plans and scope of the undertaking.

Alternative 3: This alternative will have *no impact* on wild and scenic rivers due to the plans and scope of the undertaking.

Alternative 4 (Preferred): This alternative will have *no impact* on wild and scenic rivers due to the plans and scope of the undertaking.

Alternative 5: This alternative will have a *no impact* on wild and scenic rivers due to the plans and scope of the undertaking.

Alternative 6: This alternative would result in *no impact* to wild and scenic rivers, as no construction would be conducted.

#### **4.17 Indirect and Cumulative Impacts**

The environmental consequences for this undertaking are considered to have *no impact* on Indirect and Cumulative Impacts. CEQ regulations stipulate that the cumulative effects analysis



within the EA consider the potential environmental impacts resulting from the “incremental impacts of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.” Cumulative effects occur when similar actions take place within approximately the same time frame or location or if one action causes a new action. Specific projects near the JUAF which add cumulative effects to the proposed action are; (1) a recently completed project on CCAA property directly adjacent to the terminal involving the construction of an aircraft fuselage assembly plant for VGA, and (2) a CAFB project completed in 2004 in which approximately 400 acres of trees were cleared to bring the airfield into compliance with Air Force and FAA airfield safety regulations.

Combined, these projects have caused impact to approximately 788 acres of forest with the VGA project causing a permanent wetlands loss by the filling of approximately 51.53 acres. On CAFB, over 110 acres of wetlands were cleared at the 33 end of Runway 15/33 and the 03 end of Runway 03/21 combined. These impacts were unavoidable due to the need for economic development of industry in the community and the maintenance of safety standards for a major U.S. Air Force installation.

Due to the current airfield layout and location, the only practical alternatives preclude complete avoidance. Similarly, due to existing safety rules and requirements from both the FAA and AMC regarding runway safety, the wetlands located at the 03 end of Runway 03/21 and at the 33 end of Runway 15/33 must be filled rather than simply cleared to avoid ponding which attracts birds and other wildlife that could endanger aircraft.

Due to the unavoidable impacts to the wetland areas, the permits obtained will require a compensatory mitigation plan as a special condition for permit issuance. It is anticipated this plan will consist of mainly off-site replacement of lost wetland functions through preservation, enhancement, restoration and possibly creation of wetland areas. This plan will utilize the current USACE compensatory mitigation standard operating procedure as a guide. The applicants will be required to commit to and execute of this plan prior to construction.

Increasing urban development is currently under way with the North Charleston area. Direct and indirect impacts to wetland resources and other natural terrestrial habitats have or are likely to occur for many purposes both on and around of the JUAF. Urban development pressures including new residential, commercial and industrial development within this area of Charleston County have increased consistently. Since the construction of the Interstate 26 and Interstate 526 interchange and the bridges to both the West Ashley section of Charleston, and town of Mount Pleasant, commercial activity in this area of North Charleston has increased dramatically. The proposed action is not likely to affect this growth of urban development – regardless of which alternative is approved. If this project were not undertaken, it is likely that due to growth in the area, similar impacts associated with future projects would likely result on nearby properties.

The need for urban resources (residential, commercial and industrial sites) within this area will continue to grow. Large tracts of land, particularly those which do not contain significant wetland areas, are becoming increasingly scarce. In most other instances, such as the construction of roads, utilities or other facilities, growth is promoted and secondary impacts occur due to additional land development. In this case, however, the construction of longer

runways will not promote additional land development. The future expansion of the VGA facility for more aeronautics business has been previously considered in the original site development plan. This project would not result in foreseeable secondary impacts, since the extensions of runways will not facilitate the potential for land development in the surrounding area.

Alternative 1: This alternative will have *no impact* on Indirect and Cumulative Impacts due to the plans and scope of the undertaking.

Alternative 2: This alternative will have *no impact* on Indirect and Cumulative Impacts due to the plans and scope of the undertaking.

Alternative 3: This alternative will have *no impact* on Indirect and Cumulative Impacts due to the plans and scope of the undertaking.

Alternative 4 (Preferred): This alternative will have *no impact* on Indirect and Cumulative Impacts due to the plans and scope of the undertaking.

Alternative 5: This alternative will have a *no impact* on Indirect and Cumulative Impacts due to the plans and scope of the undertaking.

Alternative 6: This alternative would result in *no impact* to Indirect and Cumulative Impacts, as no construction would be conducted.

## **5.0 LIST OF PREPARERS**

### **S&ME, Inc.**

Eric J. McClanahan, PWS  
Environmental Department-Charleston Branch  
Biologist & Natural Resources Project Manager – Environmental Consultant  
10 years experience as a Natural Resources Professional

James L. Killingsworth, CHMM  
Environmental Department – Charleston Branch  
Senior Project Manager/Senior Reviewer  
20 years experience as an Environmental/Industrial Hygiene Professional

John McCarthy, MA  
Licensed Archeologist – Charleston Branch  
Senior Project and Department Manager  
20 years experience as an Archeologist

Chuck Black, PE  
Environmental Department – Charleston Branch  
Senior Project Manager/Senior Reviewer  
16 years experience as an Environmental Engineer

Andres Wertz, PE  
Environmental Department – Charleston Branch  
Environmental Engineer - Project Manager  
9 years experience as an Environmental Engineer

Bret Davis  
Environmental Department-Charleston Branch  
Environmental Project Manager – Environmental Consultant  
9 years experience as an Environmental Professional

Terri Sciarro, EI  
Environmental Department – Charleston Branch  
Environmental Engineer – Environmental Consultant  
5 years experience as a Project Manager and Environmental Consultant

**APPENDIX A**  
**Mailing List of Scoping Letters - DOPAA**

Mr. Tim Hall  
Field Supervisor  
U.S. Fish and Wildlife Service  
176 Croghan Spur Road, Suite 200  
Charleston, SC 29407

Ms. Robin Socha  
U.S. Army Corps of Engineers  
Charleston District  
Regulatory Division  
69-A Hagood Avenue  
Charleston, SC 29403-5107

Ms. Edith Parish  
Management Federal Aviation Administration  
800 Independence Avenue, SW  
Washington, DC 20591

Mr. Rich Richter  
Regional Director  
Region 7 Environmental Quality Control Office  
SCDHEC  
1362 McMillan Avenue, Suite 300  
Charleston, SC 29405

Mr. John Frampton  
Director  
South Carolina Dept. of Natural Resources  
PO Box 167  
Columbia, SC 29202

Mr. Ed Duncan  
South Carolina Dept. of Natural Resources  
Region 4- Charleston  
PO Box 12559  
Charleston, SC 29422

Mr. Prescott Brownell  
NOAA- NMFS  
219 Ft. Johnson Road  
Charleston, SC 29412

Mr. Bill Gore  
North Charleston Dept. of Planning and  
Management  
PO Box 190016  
North Charleston, SC 29419-9016



Mr. Curtis Joyner  
Office of Ocean and Coastal Resource Mgmt  
SCDHEC  
1362 McMillan Avenue, Suite 400  
Charleston, SC 29405

Ms. Rebekah Dobrasko  
Review and Compliance Coordinator  
South Carolina Dept of Archives and History  
8301 Parklane Road  
Columbia, SC 29223

Dr. Wenonah Haire  
Catawba Indian Nations THPO  
1536 Tom Stevens Road  
Rock Hill, SC 29730

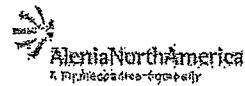
Michell Hicks, Principal Chief  
Eastern Band of Cherokee Indians  
PO Box 455  
Cherokee, NC 28719

Glenna Wallace, Chief  
Eastern Shawnee Tribe of Oklahoma  
PO Box 350  
Seneca, MO 64865

Principal Chief A.D. Ellis  
Muscogee (Creek) Nation of Oklahoma  
PO Box 580  
Okmulgee, OK 74447

Mr. Parks Preston  
Federal Aviation Administration  
1701 Columbia Avenue  
Campus Building Suite 2-260  
College Park, GA 30337-2747

**APPENDIX B**  
**Agency Response Letters**



October 4, 2007

Susan M. Stevens, A.A.E.  
Director of Airports  
Charleston County Aviation Authority  
5500 International Blvd, #101  
Charleston, SC 29418

Dear Mrs. Stevens:

We are writing over our concerns about runway construction at the Charleston Airport/Air Force base. It has come to our attention that the U.S. Air Force plans to completely rehabilitate both runways at Charleston Air Force Base/International Airport over the next few years. After reviewing the Air Force's plans, we believe that, at a minimum, the current capability of the airport to support large aircraft needs to be maintained. Lengthening of both runways would enhance our ability to conduct long-term cargo operation out of Charleston. We strongly suggest the airport authority consider this option.

Charleston International Airport is a critical component in the production of the Boeing 787 Dreamliner. Vought and Global Aeronautica, a joint venture between Vought and Alenia North America, have large manufacturing facilities adjacent to the Charleston International Airport to produce fuselage sections for the Boeing 787 Dreamliner. Production materials and final production products are routinely flown in and out of Charleston on modified 747-400 passenger aircraft. The aircraft are modified to the large cargo freighter (LCF) configuration and are known as Dreamlifters. Evergreen International Airline conducts Dreamlifter operations on behalf of Boeing. Efficient and timely production of the 787 depends on Vought, Global Aeronautica and Evergreen meeting delivery commitments made to Boeing. As production continues to increase, Dreamlifter operations are expected to increase at Charleston, reaching two to three flights per day by 2010.

We are concerned that runway construction could affect our schedules. When the Air Force shuts down runway 15/33 for rehabilitation, Dreamlifter operations on runway 03/21 will be severely affected. In order to maintain safe operations, the payload and fuel will be severely restricted and will require an additional fuel stop immediately after takeoff. This unexpected complication will be costly and time-consuming. In order to minimize constraints and allow safe and effective continuing operations, we urge the airport authority to pursue appropriate plans to maintain the ability to support commercial 747 cargo operations.



October 31, 2007

Ms. Susan M. Stevens, AAE  
Director of Airports  
Charleston County Aviation Authority  
5500 International Blvd., # 101  
Charleston, SC 29418-6911

Re: Charleston International Airport Runway Extension

Dear Sue:

As the Charleston three-county region's economic development marketing organization for new business attraction and competitive business expansion, we are pleased to write this letter in support of runway lengthening at Charleston International Airport (CHS).

With a number of relevant economic assets, our region has identified the aerospace/aviation industry as a viable target for our community's economic development efforts. The proposed extension project at CHS will significantly improve our overall competitiveness in attracting and retaining large aircraft assembly projects.

Our experience has shown that larger scale projects, typically led by industrial site location consultants, call for a minimum runway length of 10,000 feet. We anticipate that a number of these larger assembly projects will soon be seeking appropriate manufacturing sites. To remain competitive, our region must be able to meet the basic site location criteria.

If you'd like to discuss this issue further, please contact me directly. Thank you for your professional leadership at the Aviation Authority!

Sincerely,

A handwritten signature in cursive script that reads "David".

David T. Ginn  
President & CEO

C: Robert Pratt, Chairman  
Charleston Regional Development Alliance

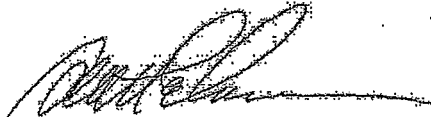
RECEIVED

NOV 5 2007

CCAA

Vought, Alenia North America and Boeing chose Charleston as its manufacturing base for a number of reasons. The availability and condition of Charleston Airport was a key consideration. We hope the authority will ensure that our operations in support of 787 production will not be adversely affected by this construction.

Sincerely,



Mr. Scott E. Carson  
President and CEO, Commercial Airplanes  
The Boeing Company



Mr. Brian Bauer  
President  
Evergreen International Airlines, Inc.



Mr. Elmer L. Doty  
President and CEO  
Vought Aircraft Industries



Mr. Giuseppe Giordo  
President and CEO  
Alenia North America

CC: General Duncan McNabb, Commander, Air Mobility Command  
Major General James Hawkins, Commander, 18<sup>th</sup> Air Forces  
Colonel John Millander, Commander 437<sup>th</sup> Airlift Wing





**EVERGREEN INTERNATIONAL AIRLINES, INC.**

3850 Three Mile Lane • McMinnville, Oregon 97128 • USA  
Phone (503) 472-0011 • Fax (503) 434-4210

*Jim I*

November 14, 2007

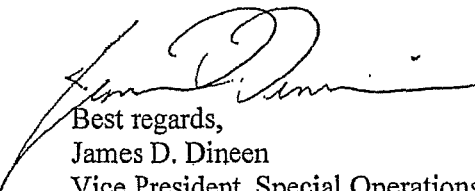
Susan M. Stevens, A.A.E.  
Director of Airports, CCAA  
Charleston International Airport  
5500 International Blvd., #101  
Charleston, South Carolina 29418-6911

Subject: LCF Technical Stop Costs

Dear Ms. Stevens,

Per your request, I have asked our operations planners to provide a cost for tech stops out of Charleston, should the runway work there prevent us from departing with a full fuel load. Depending on the requirement and availability of slots, (likely stop would be at JFK, Evergreen's primary hub), the cost is \$20,000 to \$25,000 in fees, additional fuel burn, and maintenance activities to support the additional turn.

Thank you for your continued support of Evergreen flight operations at Charleston.

  
Best regards,  
James D. Dineen  
Vice President, Special Operations  
Evergreen International Airlines, Inc.

**RECEIVED**

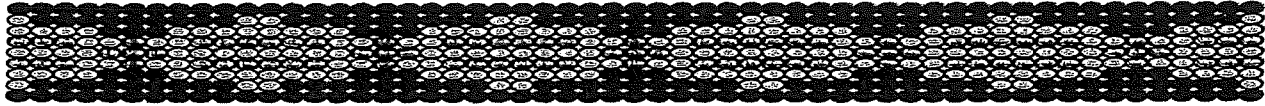
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CCAA

Catawba Indian Nation  
Tribal Historic Preservation Office  
1536 Tom Steven Road  
Rock Hill, South Carolina 29730

FEB 11 2008

Office 803-328-2427  
Fax 803-328-5791



5 February 2008

S&ME  
620 Wando Park Boulevard  
Mt. Pleasant, South Carolina 29464

Re. THPO #	Project description / location
2008-285-1	S&ME 1134-07-747 Proposed Action & Alternatives for EA for Extension of Runways, Charleston Air Force Base, SC

Dear Sir or Madam:

Thank you for providing us with information regarding the Description of Proposed Action and Alternatives and the Environmental Assessment of the Proposed Runway Expansions for Charleston Air Force Base / Charleston International Airport, South Carolina. We will send our comments as soon as possible.

If you have questions, please contact Sandra Reinhardt at 803-328-2427 ext. 233, or e-mail [sandrar@ccppcrafts.com](mailto:sandrar@ccppcrafts.com).

Sincerely,

*Sandra Reinhardt for*

Wenonah G. Haire  
Tribal Historic Preservation Officer



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
CHARLESTON DISTRICT, CORPS OF ENGINEERS  
69A Hagood Avenue  
CHARLESTON, SOUTH CAROLINA 29403-5107

February 19, 2008

Regulatory Division

Mr. Jeffrey P. Garrett, YF-2, DAFC  
Department of the Air Force  
437 CES/CEV  
100 West Stewart Avenue  
Charleston AFB, SC 29404-4827

Dear Mr. Garrett:

This is in response to your letter of January 30, 2008, requesting comments on an environmental review that you are preparing for the Charleston Air Force Base runway extensions. The project areas include the ends of all existing runways at the CAFB in North Charleston, Charleston County, South Carolina.

Based on a review of the information provided, it appears that the proposed extensions will impact federally defined freshwater wetlands or other waters of the United States that are subject to the jurisdiction of this office. Any impacts to areas subject to the permitting authority of this office will require authorization pursuant to Department of the Army permit requirements, which include Section 404 of the Clean Water Act.

In order for this office to determine whether or not your project qualifies for a general permit, individual permit, or even requires a permit, a wetland delineation must be submitted, along with plans showing the proposed activities in detail.

In future correspondence concerning this matter, please refer to SAC-2008-0332-2JD. If you have any questions concerning this matter, please contact me at 843/329-8044.

Respectfully,

A handwritten signature in black ink, appearing to read "S. Dean Herndon", is written over a horizontal line.

S. Dean Herndon  
Project Manager

# South Carolina Department of Natural Resources



February 27, 2008

John E. Frampton  
Director  
Robert H. Boyles, Jr.  
Deputy Director for  
Marine Resources

Mr. Jeffery P. Garrett  
Department of the Air Force  
437 CES/CEV  
100 West Stewart Avenue  
Charleston AFB, SC 29404-4827

REF: Description of Proposed Action and Alternatives (DOPAA) for an Environmental Assessment (EA) for Extension of Runways at Charleston Air Force Base, South Carolina.

Dear Mr. Garrett:

Personnel with the South Carolina Department of Natural Resources have reviewed the proposal to prepare an Environmental Assessment (EA) for the above referenced project and offer the following comments.

The proposed project involves improvements to two existing runways to provide an increased capacity to current and future users of the CAFB/CIAP airfield. Several of the alternatives being considered involve dredge and fill activities in a significant area of wetlands. In addition to the direct impacts associated with the filling and permanent loss of wetlands, the proposed EA should include discussions on impact avoidance and minimization as well as compensatory mitigation for unavoidable impacts.

We appreciate the opportunity to provide these comments early on in the planning stages of this project. Please contact us for further comment when additional information becomes available.

Sincerely,

A handwritten signature in black ink, appearing to read "Susan F. Davis".

Susan F. Davis  
Coastal Environmental Coordinator

Cc: SCDHEC/EQC  
OCRM/Joyner  
USEPA/Lord  
USFWS/Hall  
NMFS



February 28, 2008

Mr. Jeffrey Garrett, YF-2, DAFC  
Chief, Environmental Fligh  
437 CES/CEV  
100 West Stewart Ave.  
Charleston AFB, SC 29404-4827

Re: Charleston Air Force Base Runway Extensions  
North Charleston, Charleston County, South Carolina

Dear Mr. Garrett:

Thank you for your letter of January 30, which we received on February 1, regarding the above-referenced undertaking. We also received one copy of *A Cultural Resources Investigation of the Runway 03-21 and 15-33 Extension, Charleston International Airport, Charleston County, South Carolina* conducted by S&ME as supporting documentation for this undertaking. The State Historic Preservation Office is providing comments to the Air Force and the Federal Aviation Authority pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR 800.

Our office believes that the methods used to identify historic properties meet the definition of "reasonable and good faith" as defined in 36 CFR 800.4(b)(1) and accept the report and documentation. Within the audible and indirect Area of Potential Effects for this project is the Ashley River Historic District, which is listed in the National Register of Historic Places. Our office believes that the proposed runway extensions at the Charleston Air Force Base should cause no adverse effect to the Ashley River Historic District.

If archaeological materials are encountered during construction, the procedures codified at 36 CFR 800.13(b) will apply. Archaeological materials consist of any items, fifty years old or older, which were made or used by man. These items include, but are not limited to, stone projectile points (arrowheads), ceramic sherds, bricks, worked wood, bone and stone, metal and glass objects, and human skeletal materials. The federal agency or the applicant receiving federal assistance should contact our office immediately.

If you have any questions, please contact me at (803) 896-6169 or [dobraska@scdah.state.sc.us](mailto:dobraska@scdah.state.sc.us).

Sincerely,

*Rebekah Dobrasko*

Rebekah Dobrasko  
Review and Compliance Coordinator  
State Historic Preservation Office





U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Federal Aviation Administration  
Atlanta Airports District Office

1701 Columbia Avenue  
Campus Building, Suite 2-260  
College Park, Georgia 30337

May 23, 2008

Ms. Susan Stevens  
Airport Director  
Charleston County Aviation Authority  
Charleston International Airport  
5500 International Blvd. #101  
Charleston, SC 29418

Dear Ms. Stevens:

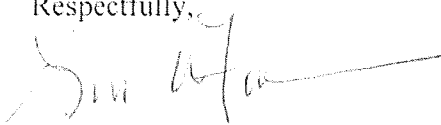
We have reviewed the Environmental Assessment (EA) for the proposed runway extensions at Charleston International Airport and offer the following comments for your consideration.

1. The Purpose and Need should clearly identify who is proposing the action and who is serving as lead agency.
2. The Purpose and Need for the Action section should clearly explain the problem and explain why the proponent wants to solve the problem, using supporting data that the problem exists. The purpose and need for the proposed project is not fully explained. The EA should contain sufficient information to show that the proposed project is needed to support the actual demand for the longer runway length. It is not clear why the current critical aircraft needs a longer runway when currently the operations do not appear to be interrupted.
3. The Alternative Section should be revised so that each alternative is described to the same level of detail to assist the reviewer in a comparative understanding of all alternatives. It is also helpful to the reviewer if each alternative list the major advantages and major disadvantages to the alternative. A matrix of all alternatives and associated impacts is also very helpful. Alternatives should be presented in comparative form so reviewer can clearly choose among the options.
4. Affected Environment Section – Please note that it is important to have the airport sponsor's assurance that the land use adjacent to or in the vicinity of the airport is restricted to activities and purposes compatible with normal airport operations. Existing and planned land uses and zoning in the affected airport vicinity, including affected residential areas, public parks, wildlife and waterfowl refuges, wetlands, floodplains, farmlands, recreation areas, historic facilities and archeological sites. Indentify noise sensitive land uses, including nearby schools and places of public assembly, hospitals, shopping areas, and adjacent political jurisdiction potentially affected by the proposed development.

5. The document is lacking a discussion on light emissions. Light sources such as approach lights, strobe lights, etc that might create and annoyance to people should be studied.
6. A mitigation plan for unavoidable wetland losses should be identified in the text. Mitigation measures should take into account guidance provided in FAA Advisory Circular (AC) 150/5200-33, Hazardous Wildlife Attractants On or Near Airports. Wetland banking is recommended whenever possible to avoid conflicts with the AC.
7. Public Involvement – Include a description of the extent of public involvement, including any special efforts to address environmental justice issues (if applicable). Mention formation or activities of any citizens groups, including whether petitions had been circulated or any letter-writing campaigns conducted. Mention any public meeting or workshops conducted prior to the public hearing, if one is held. Discuss the availability of the EA to the public and the opportunity for a public hearing and whether one was held.
8. Appendices should include a listing of agencies/groups consulted and any responses, summary of citizen involvement (transcript or summary of transcript of public hearing), copy of notice of opportunity of public hearing published in newspaper, etc.
9. General Comments – The EA should be a stand-alone document; thus all pertinent information that will be needed for complete review of the EA should be included in the EA rather than referenced from other documents. The EA must contain enough information pertinent to the environmental impacts being examined so that Federal, state, and local reviewing agencies will have all the facts needed to make a determination of significance relative to their areas of expertise.

If you have any questions, please feel free to contact me at 404-305-7145.

Respectfully,



Lisa W. Favors  
Environmental Program Manager

cc: Eric McClanahan, S&ME Inc.  
*File*

Catawba Indian Nation  
Tribal Historic Preservation Office  
1536 Tom Steven Road  
Rock Hill, South Carolina 29730  
803-328-2427 Fax 803-328-5791

JUN 23 2008



17 June 2008

Mr. John P. McCarthy  
S&ME  
620 Wando Park Boulevard  
Mt. Pleasant, South Carolina 29464

THPO #	S&ME #	Project location
2008-8-7	1134-07-747	Cultural Resources Reconnaissance of Runways 03/21 & 15/33, Extension, Charleston International Airport Charleston Co., SC

Dear Mr. McCarthy,

Thank you for providing the Catawba Indian Nation Tribal Historic Preservation Office a copy of the above-referenced Cultural Resources Reconnaissance in Charleston County, South Carolina. The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. The Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.

If you have questions, please contact Sandra Reinhardt at 803-328-2427 ext. 233, or e-mail [sandrar@ccppcrafts.com](mailto:sandrar@ccppcrafts.com).

Sincerely,

*Sandra Reinhardt for*

Wenonah G. Haire  
Tribal Historic Preservation Officer



## CHARLESTON COUNTY AVIATION AUTHORITY

CHARLESTON INTERNATIONAL AIRPORT • 5500 INTERNATIONAL BLVD. • #101 • CHARLESTON, SC 29418-6911

TELE: (843) 767-7000 • FAX: (843) 760-3020

August 4, 2008

**VIA FACSIMILE: (843) 881-6149**

Mr. Eric McClanahan  
Wetland & Natural Resources Project Manager  
S&ME  
620 Wando Park Boulevard  
Mt. Pleasant, SC 29464

RE: CHS Runway Extension Environmental Assessment

Dear Eric:

I spoke with Mr. Doug Albright (Integrated Planner-HQ AMC) on this date concerning the viability of a phased approach to the mitigation strategy for runways 15-33 and 03-21 for the above referenced project. Doug reiterated that the EA must encompass the total effort for the two extensions, but agreed that a phased or two tier approach for the wetland mitigation strategy makes sense due to the uncertainty and lengthy period to the start of the 15-33 extension. The major points discussed are included below:

- Phase I will address the specific mitigation strategy for the 03-21 extension effort.
- Phase II will outline the notional arrangement for achieving mitigation for the 15-33 effort with provisions for reevaluation of the specific mitigation measures once the 15-33 extension becomes a viable project.

Thank you for your efforts in firming up the EA mitigation plans and please do not hesitate to call should you have any questions.

Sincerely,

Jim Fann, A.A.E.  
Director of Engineering

JF/dcl

cc: Susan M. Stevens, A.A.E., Director of Airports  
William F. New, Jr., Deputy Director of Airports  
Robert C. Brammer, Director of Operations  
Robert Carew, A.A.E., Manager of Properties  
Greg Jones, P.E., ADC Engineering  
Master File  
Project File

## Eric McClanahan

---

**From:** Wade, Andrea R SAC [Andrea.R.Wade@usace.army.mil]  
**Sent:** Monday, August 18, 2008 5:12 PM  
**To:** Eric McClanahan  
**Subject:** RE: Charleston Airport EA for the Air Force

Eric,

I working on a response to the information you provided.

However, in order to provide feedback on your mitigation proposal, at a minimum, we will need you to provide the information listed below:

- (1) Objectives. A description of the resource type(s) and amount(s) that will be provided, the method of compensation (i.e., restoration, establishment, enhancement, and/or preservation), and the manner in which the resource functions of the compensatory mitigation project will address the needs of the watershed, ecoregion, physiographic province, or other geographic area of interest.
- (2) Site selection. A description of the factors considered during the site selection process, including consideration of watershed needs, onsite alternatives where applicable and the practicability of accomplishing ecologically self-sustaining compensatory mitigation at the mitigation project site.
- (3) Site protection instrument. A description of the legal arrangements and instrument, including site ownership, that will be used to ensure the long-term protection of the compensatory mitigation project site.
- (4) Baseline information. A description of the ecological characteristics of the proposed compensatory mitigation project site and, in the case of an application of a DA permit, the impact site.
- (5) Determination of credits. A description of the number of credits to be provided, including a brief explanation of the rationale for this determination.
- (6) Mitigation work plan. Detailed written specifications and work descriptions for the compensatory mitigation project, including, but not limited to, the geographic boundaries of the project; construction methods, timing, and sequence; source(s) of water, including connections to existing waters and uplands; methods for establishing the desired upland community; plans to control invasive plant species; the proposed grading plan, including elevations and slopes of the substrate; soil management; and erosion control measures. For stream compensatory mitigation projects, the compensatory mitigation work plan may also include other relevant information, such as planform geometry, channel form, watershed size, design discharge and riparian area plantings.
- (7) Maintenance plan. A description and schedule of maintenance requirements to ensure the continued viability of the resource once initial construction is completed.
- (8) Performance standards. Ecologically-based standards that will be used to determine whether the compensatory mitigation project is achieving its objectives.
- (9) Monitoring requirements. A description of parameters to be monitored in order to determine if the compensatory mitigation project is on track to meet performance standards and if adaptive management is needed. A schedule for monitoring and reporting on monitoring results to the district engineer must be included.
- (10) Long-term management plan. A description of how the compensatory mitigation project will be managed after the performance standards have been achieved to ensure the long-term sustainability of the resource, including long-term financing mechanisms and the party responsible for long-term management.
- (11) Adaptive management plan. A management strategy to address unforeseen changes in site conditions or other components of the compensatory mitigation project, including the party

or parties responsible for implementing adaptive management measures.

(12) Financial assurances. A description of financial assurances that will be provided and how they are sufficient to ensure a high level of confidence that the compensatory mitigation project will be successfully completed in accordance with its performance standards.

In addition, if your proposal includes preservation, you must demonstrate that your proposal meets the (5) Preservation Criteria found in Section 2(h) on page 19693 of the Mitigation Rule.

Finally, please be aware that the mitigation sequence established by the Clean Water Act Section 404(b)(1) Guidelines has been retained in the mitigation rule. Proposed impacts must be avoided to the maximum extent practicable; remaining unavoidable impacts must then be minimized, and finally compensated for to the extent appropriate and practicable.

For compensatory mitigation, the Mitigation Rule establishes a preference hierarchy for mitigation options. The most preferred option is mitigation bank credits. In-lieu fee program credits are second in the preference hierarchy. Permittee-responsible mitigation is the third option, with three possible circumstances: (1) conducted under a watershed approach, (2) on-site and in kind, and (3) off-site/out-of-kind. The Corps is the final decision-maker regarding whether a proposed compensatory mitigation option provides appropriate compensation for a Department of the Army permit.

Please feel free to contact me if you have any questions.

Andrea R. Wade  
U.S. Army Corps of Engineers  
Charleston District  
69-A Hagood Avenue  
Charleston, South Carolina 29403

phone: (843) 329-8164  
fax: (843) 329-2332

In order to assist us in improving our service to you, please complete the survey found at <http://regulatory.usacesurvey.com/>.

-----Original Message-----

From: Eric McClanahan [mailto:EMcClanahan@smeinc.com]  
Sent: Monday, August 18, 2008 3:24 PM  
To: Wade, Andrea R SAC  
Subject: Charleston Airport EA for the Air Force

Regarding this EA document, had you had a chance to review our assessment?

I have reviewed the April 2008 rule change.

My notes (in general) for the 2008 rule changes for mitigation are:

\* I did not see in the main body of the regulation that it significantly changes the requirements (specifically) any "permittee sponsored mitigation projects".

\* The new things I saw were in providing the mitigation plan, with some specific proposals for financial backing of the project - to insure success.

\* The ratios of preservation, restoration and enhancement do not have any specific changes, and public land is not excluded from use.

\* Nothing in this would seem to contradict any major parts of the



Charleston district 2002 SOP.

What do you think?

Once the airport begins its engineering for the project we will quickly get a draft permit document together so the Corps can at least start a file for the project.

---

Eric J. McClanahan, PWS  
Wetland & Natural Resources Project Manager S&ME Logo <<http://www.smeinc.com>> ENGINEERING  
INTEGRITY.

S&ME, Inc.  
620 Wando Park Boulevard  
Mt. Pleasant SC 29464 Map  
<<http://maps.google.com/maps?f=q&hl=en&q=620+Wando+Park+Boulevard,+Mt.+Pleasant+SC+29464&sll=34.259912,-77.847855&sspn=0.012538,0.027122&layer=&ie=UTF-17&om=1&iwloc=addr>>  
Ph: 843-884-0005  
Fax: 843-881-6149  
Mobile: (843) 696-9865

emccclanahan@smeinc.com <<mailto:emccclanahan@smeinc.com>> [www.smeinc.com](http://www.smeinc.com)  
<<http://www.smeinc.com/>>

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